ML-82

(Gas/Steam Models)

Installation/Operator's Manual

WARNING: For your safety the information in this manual must be followed to minimize the risk of fire or explosion or to prevent property damage, personal injury or death.

Do not store or use gasoline or other flammable vapor and liquids in the vicinity of this or any other appliance.

WHAT DO YOU DO IF YOU SMELL GAS

* Do not try to light any appliance.
* Do not touch any electrical switch; do not use any phone in your building.
* Clear the room, building or area of all occupants.
* Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
* If you cannot reach your gas supplier, call the fire department.

Installation and service must be performed by a qualified installer, service agency or the gas supplier.

AVERTISSEMENT: Assurez-vous de bien suivre les instructions données dans cette notice pour réduire au minimumle risque d'incendie ou d'explosion pour ou éviter tout dommage matériel, toute blessure ou la mort.

Ne pas entreposer ni utiliser d'essence ni d'autres vapeurs ou liquides inflammables dans le voisinagede cet appareil ou de tout autre appareil.

QUE FAIRE SI VOUS SENTEZ UNE ODEUR DE GAZ:

* Ne pas tenter d'allumer d'appareil.
* Ne touchez à aucun interrupteur. Ne pas vous servir des téléphones se trouvant dans le bâtiment où vous vous trouvez..
* Évacuez la pièce le bâtiment ou la zone.
* Appelez immédiatement votre fournisseur de gaz depuis un voisin. Suivez les instructions du fournisseur.
* Si vous ne pouvez rejoindre le fournisseur de gaz appelez le service des incendies.

Línstallation et l'entretien doivent être assurés par un installateur ou un service d'entretien qualiifié ou par le fournisseur de gaz.

American Dryer Corp.

For replacement parts, contact the distributor from which the dryer was purchased or

American Dryer Corporation
88 Currant Road
Fall River MA 02720-4781
Telephone: (508) 678-9000 / Fax: (508) 678-9447
E-mail: techsupport@amdry.com

101498GS/cj

ADC Part No. 113051

Retain This Manual In A Safe Place For Future Reference

American Dryer Corporation products embody advanced concepts in engineering, design, and safety. If this product is properly maintained, it will provide many years of safe, efficient, and trouble-free operation.

ONLY qualified technicians should service this equipment.

OBSERVE ALL SAFETY PRECAUTIONS displayed on the equipment or specified in the installation/operator's manual included with the dryer.

The following "**FOR YOUR SAFETY**" caution **must be** posted near the dryer in a prominent location.

FOR YOUR SAFETY	POUR VOTRE SÉCURITÉ
Do not store or use gasoline or other flammable vapors or liquids in the vicinity of this or any other appliance.	Ne pas entreposer ni utiliser d'essence ni d'autres vapeurs ou liquides inflammables dans le voisinage de cet appareil ou de yout autre appareil.

We have tried to make this manual as complete as possible and hope you will find it useful. **ADC** reserves the right to make changes from time to time, without notice or obligation, in prices, specifications, colors, and material, and to change or discontinue models.

Important

For your convenience, log the following information:

DATE OF PURCHASE _____ **MODEL NO.** **ML-82**

DISTRIBUTORS NAME _____

Serial Number(s) _____

_____

_____

Replacement parts can be obtained from your distributor or the **ADC** factory. When ordering replacement parts from the factory, you can FAX your order to **ADC** at (508) 678-9447 or telephone your orders directly to the **ADC** Parts Department at (508) 678-9000. Please specify the dryer **model number** and **serial number** in addition to the **description** and **part number**, so that your order is processed accurately and promptly.

"IMPORTANT NOTE TO PURCHASER"

Information must be obtained from your local gas supplier on the instructions to be followed if the user smells gas. These instructions must be posted in a prominent location near the dryer.

IMPORTANT

YOU MUST DISCONNECT and LOCKOUT THE ELECTRIC SUPPLY and THE GAS SUPPLY or THE STEAM SUPPLY BEFORE ANY COVERS or GUARDS ARE REMOVED FROM THE MACHINE TO ALLOW ACCESS FOR CLEANING, ADJUSTING, INSTALLATION, or TESTING OF ANY EQUIPMENT per OSHA (Occupational Safety and Health Administration) **STANDARDS.**

CAUTION

LABEL ALL WIRES PRIOR TO DISCONNECTION WHEN SERVICING CONTROLS. WIRING ERRORS CAN CAUSE IMPROPER AND DANGEROUS OPERATION.

VERIFY PROPER OPERATION AFTER SERVICING.

CAUTION

DRYER(S) SHOULD NEVER BE LEFT UNATTENDED WHILE IN OPERATION.

WARNING

CHILDREN SHOULD NOT BE ALLOWED TO PLAY ON OR NEAR THE DRYER(S).

CHILDREN SHOULD BE SUPERVISED IF NEAR DRYER(S) IN OPERATION.

FOR YOUR SAFETY

DO NOT DRY MOP HEADS IN THE DRYER.

DO NOT USE DRYER IN THE PRESENCE OF DRY CLEANING FUMES.

WARNING

UNDER NO CIRCUMSTANCES should the door switch or the heat circuit devices ever be disabled.

WARNING

The dryer must never be operated with any of the back guards, outer tops, or service panels removed. PERSONAL INJURY or FIRE COULD RESULT.

IMPORTANT

PLEASE OBSERVE ALL SAFETY PRECAUTIONS displayed on the equipment and/or specified in the installation/operator's manual included with the dryer.

Dryer(s) **must not** be installed or stored in an area where it will be exposed to water and/or weather.

The wiring diagram for the dryer is located in the front electrical control box area.

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SECTION I

IMPORTANT INFORMATION

A. RECEIVING and HANDLING

The dryer is shipped in a protective stretch wrap cover with protective cardboard corners and top cover (or optional box) as a means of preventing damage in transit. Upon delivery, the dryer and/or packaging, and wooden skid should be visually inspected for shipping damage. If any damage whatsoever is noticed, inspect further before delivering carrier leaves.

Dryers damaged in shipment:

1. **ALL** dryers **should be** inspected upon receipt and before they are signed for.
2. If there is suspected damage or actual damage, the trucker's receipt **should be** so noted.
3. If the dryer is damaged beyond repair, it **should be** refused. Those dryers which were not damaged in a damaged shipment **should be** accepted, but the number received and the number refused **must be** noted on the receipt.
4. If you determine that the dryer was damaged after the trucker has left your location, you should call the delivering carrier's freight terminal immediately and file a claim. The freight company considers this concealed damage. This type of freight claim is very difficult to get paid and becomes extremely difficult when more than a day or two passes after the freight was delivered. It is your responsibility to file freight claims. Dryer/parts damaged in transit ***cannot*** be claimed under warranty.
5. Freight claims are the responsibility of the consignee, and **ALL** claims **must be** filed at the receiving end. **ADC** assumes no responsibility for freight claims or damages.
6. If you need assistance in handling the situation, please contact the **ADC** Traffic Manager at (508) 678-9000.

IMPORTANT: The dryer ***must be*** transported and handled in an upright position at all times.

B. SAFETY PRECAUTIONS

WARNING: For your safety, the information in this manual ***must be*** followed to minimize the risk of fire or explosion or to prevent property damage, personal injury, or loss of life.

WARNING: The dryer *must never be* operated with any of the back guards, outer tops, or service panels removed. PERSONAL INJURY or FIRE COULD RESULT.

1. ***DO NOT*** store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.
2. Purchaser or user should consult the local gas supplier for proper instructions to be followed in the event the user smells gas. The instructions ***should be*** posted in a prominent location.
3. WHAT TO DO IF YOU SMELL GAS

   a. ***DO NOT*** try to light any appliance.

   b. ***DO NOT*** touch any electrical switch.

   c. ***DO NOT*** use any phone in your building.

d. Clear the room, building, or area of **ALL** occupants.

e. Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.

f. If you ***cannot*** reach your gas supplier, call the fire department.

4. Installation and service ***must be*** performed by a qualified installer, service agency, or gas supplier.

5. Dryers ***must be*** exhausted to the outdoors.

6. Although **ADC** produces a very versatile machine, there are some articles that, due to fabric composition or cleaning method, ***should not*** be dried in it.

WARNING: Dry only water-washed fabrics. ***DO NOT*** dry articles spotted or washed in dry cleaning solvents, a combustible detergent, or "all purpose" cleaner. ***EXPLOSION COULD RESULT.***

WARNING: ***DO NOT*** dry rags or articles coated or contaminated with gasoline, kerosene, oil, paint, or wax. ***EXPLOSION COULD RESULT.***

WARNING: ***DO NOT*** dry mop heads. Contamination by wax or flammable solvent will create a fire hazard.

WARNING: ***DO NOT*** use heat for drying articles that contain plastic, foam, sponge rubber, or similarly textured rubberlike materials. Drying in a heated basket (tumbler) may damage plastics or rubber and also may be a fire hazard.

7. A program ***should be*** established for the inspection and cleaning of lint in the burner area, exhaust duct work, and area around the back of the dryer. The frequency of inspection and cleaning can best be determined from experience at each location.

WARNING: The collection of lint in the burner area and exhaust duct work can create a potential fire hazard.

8. For personal safety, the dryer ***must be*** electrically grounded in accordance with local codes and/or the NATIONAL ELECTRIC CODE ANSI/NFPA NO. 70-LATEST EDITION.

NOTE: Failure to do so will VOID THE WARRANTY.

9. ***UNDER NO CIRCUMSTANCES*** should the dryer door switches, lint drawer switch, or heat safety circuit, ever be disabled.

WARNING: PERSONAL INJURY or FIRE COULD RESULT.

10. This dryer ***is not*** to be used in the presence of dry cleaning solvents or fumes.

11. Remove articles from the dryer as soon as the drying cycle has been completed.

WARNING: Articles left in the dryer after the drying and cooling cycles have been complete can create a fire hazard.

12. **READ and FOLLOW ALL CAUTION and DIRECTION LABELS ATTACHED TO THE DRYER.**

WARNING: YOU MUST DISCONNECT and LOCKOUT THE ELECTRIC SUPPLY and THE GAS SUPPLY or THE STEAM SUPPLY BEFORE ANY COVERS or GUARDS ARE REMOVED FROM THE MACHINE TO ALLOW ACCESS FOR CLEANING, ADJUSTING, INSTALLATION, or TESTING OF ANY EQUIPMENT per OSHA (Occupational Safety and Health Administration) **STANDARDS.**

SECTION II

SPECIFICATIONS/COMPONENT IDENTIFICATION

A. SPECIFICATIONS

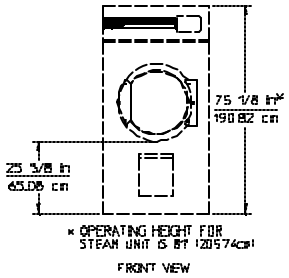
Basket (Tumbler) Diameter			37"		94 cm	
Basket (Tumbler) Depth			36"		91.5 cm	
Basket (Tumbler) Motor			1/2 HP		.373 kw	
Blower Motor			3 HP		2.238 kw	
Door Opening (Diameter)			21-1/2"		54.61 cm	
Basket (Tumbler) Volume			22.4 cu. ft.		.634 cu.m.	
Dryers Per 20'/40" Container			10/20			
Dryers Per 45'/48' Truck			24/24			
Gas	Voltage Available		208-460v / 3ø / 50 / 60Hz			
	Approx. Weight (uncrated)		828 lbs.		375.6 kg	
	Approx. Weight (crated)		878 lbs.		398.3 kg	
	Heat Input		270,000 btu/hr		68,040 kcal/hr	
	Airflow		1,700 cfm		48.14 cmm	
	Inlet Pipe Size		1"		2.54 cm	
Steam	Voltage Available		208-460v / 3ø / 50 / 60Hz			
	Approx. Weight (uncrated)		828 lbs.		392.7 kg	
	Approx. Weight (crated)		914 lbs.		415.5 kg	
	Airflow		2,500 cfm		98.8 cmm	
	Air Connection		1/8" F.P.T.		.318 cm	
	Steam Comsumption		Boiler HP Normal Load			
	375 lbs/hr	170.5 kg/hr	11			
	Operating Steam Pressure		Steam Supply		Steam Return	
	125 psi max	8.79 kg/cm^2	1"	2.54 cm	1"	2.54 cm

Shaded areas are metric equivalents.

IMPORTANT: Steam dryers ***must be*** provided with a clean, dry, regulated 80 PSI (+/- 10 PSI) air supply.

NOTE: **ADC** reserves the right to make changes in specifications at any time, without notice or obligation.

Specifications*
ML-82
(Gas and Steam ONLY)



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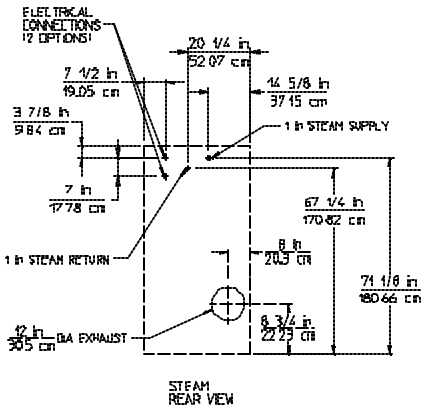

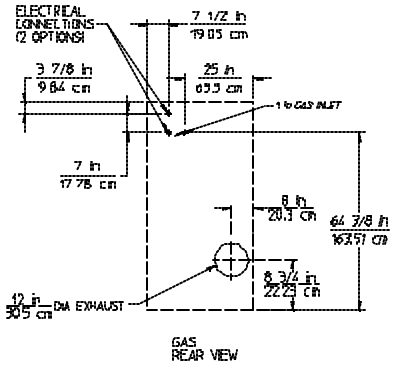

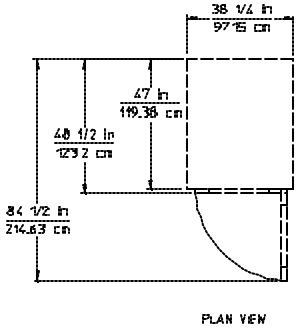

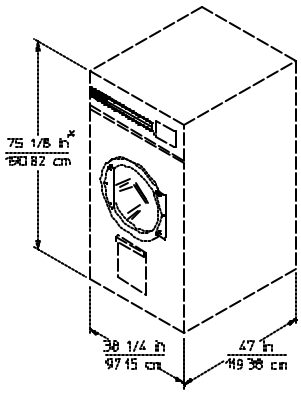

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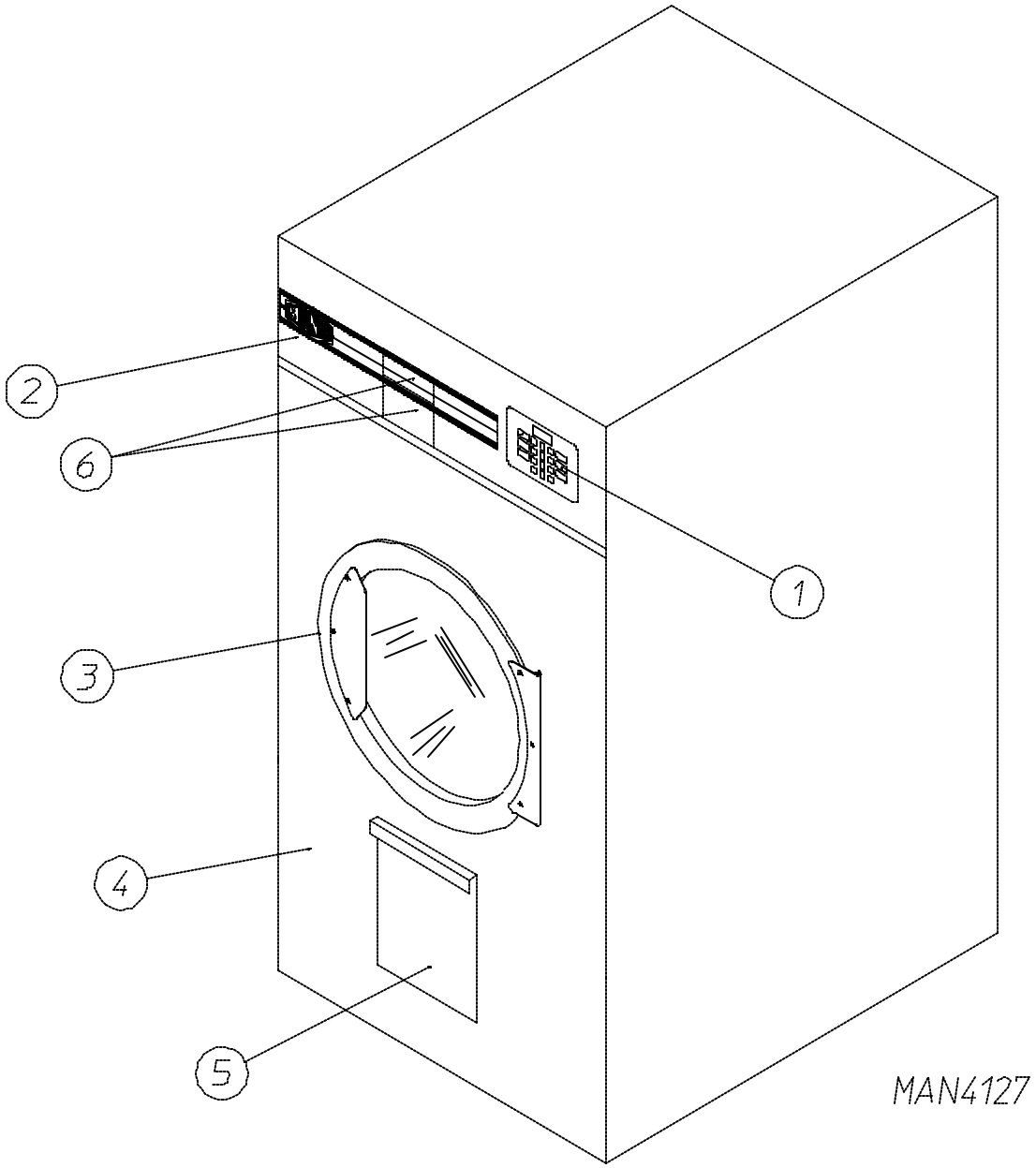
NOTE: **ADC** reserves the right to make changes in specifications at any time, without notice or obligation.

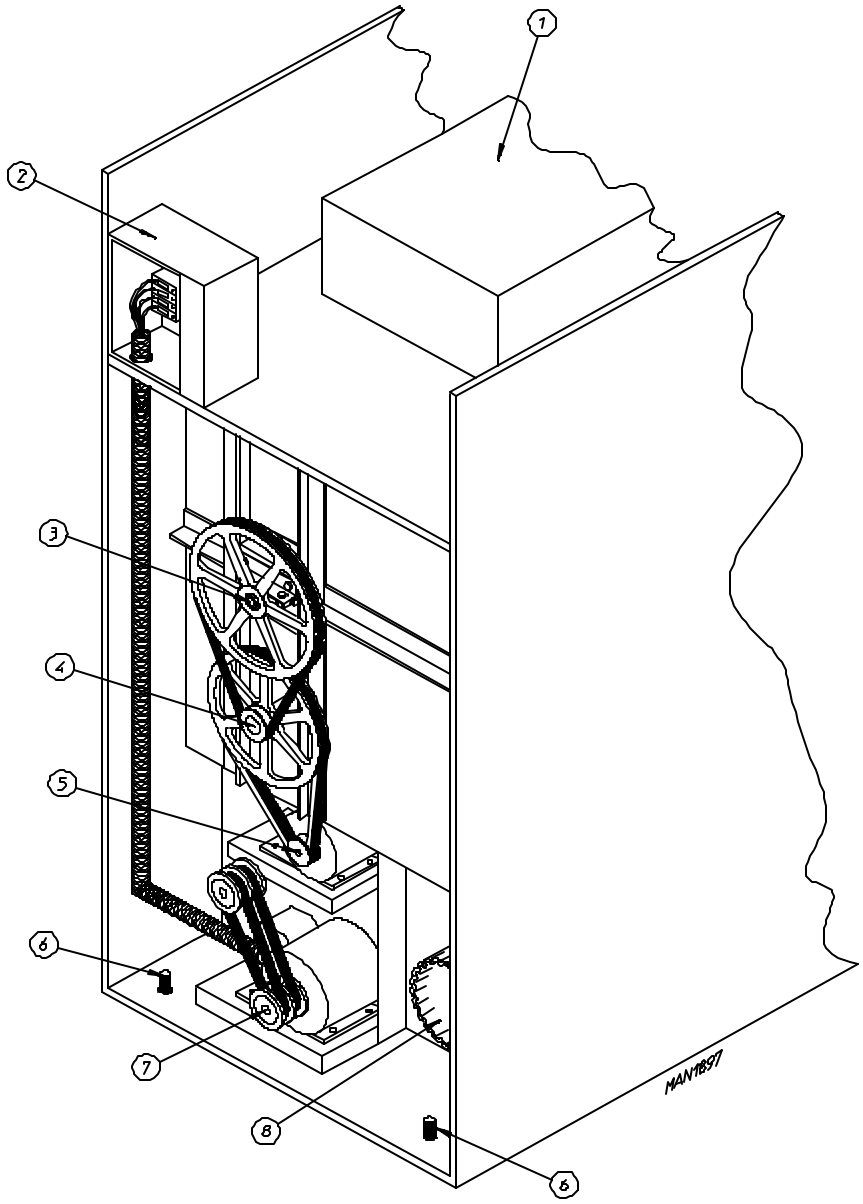
B. COMPONENT IDENTIFICATION

1. Dryer Front View



Illus. No.	Description
1	Controls
2	Control (top access) Door Assembly
3	Main Door Assembly
4	Lint Compartment Area (lint screen located behind door)
5	Lint Drawer
6	Data Label and Installation Label (located behind control [service] door)

2. Dryer Rear View



Illus. No.	Description
1	Heating Unit
2	1/8" Compressed Air Supply Inlet (behind Electric Service Relay Box for Steam Models ONLY)
3*	Electric Service Relay Box
4	Tumbler Bearing Mount Assembly
5	Idler Bearing Mount Assembly
6	Basket (Drive) Motor Assembly (for Reversing Models ONLY)
7	Blower Motor Assembly
8	Dryer Exhaust

* Electric service connections for Gas Models and Steam Models are made in this box.

SECTION III

INSTALLATION PROCEDURES

Installation **should be** performed by competent technicians in accordance with local and state codes. In the absence of these codes, the installation **must conform** to applicable American National Standards: National Fuel Gas Code ANSI.Z223.1-LATEST EDITION and/or National Electric Code ANSI/NFPA NO. 70-LATEST EDITION.

A. LOCATION REQUIREMENTS

Before installing the dryer, be sure the location conforms to local codes and ordinances. In the absence of such codes or ordinances the location **must conform** with the National Fuel Gas Code ANSI.Z223.1-LATEST EDITION.

1. The dryer **must be** installed on a sound level floor capable of supporting its weight. It is recommended that carpeting be removed from the floor area that the dryer is to rest on.

2. The dryer **must not be** installed or stored in an area where it will be exposed to water and/or weather.

3. The dryer is for use in noncombustible locations.

4. Provisions for adequate air supply **must be** provided as noted in this manual (refer to **Fresh Air Supply** in **Section D**).

5. Clearance provisions **must be** made from combustible construction as noted in this manual (refer to **Dryer Enclosure Requirements** in **Section C**).

6. Provisions **must be** made for adequate clearances for servicing and for operation as noted in this manual (refer to **Dryer Enclosure Requirements** in **Section C**).

7. Dryer **must be** exhausted to the outdoors (refer to **Exhaust Requirements** in **Section E**).

8. Dryer **must be** located in an area where correct exhaust venting can be achieved as noted in the manual (refer to **Exhaust Requirements** in **Section E**).

IMPORTANT: Dryer ***should be*** located where a minimum amount of exhaust duct will be necessary.

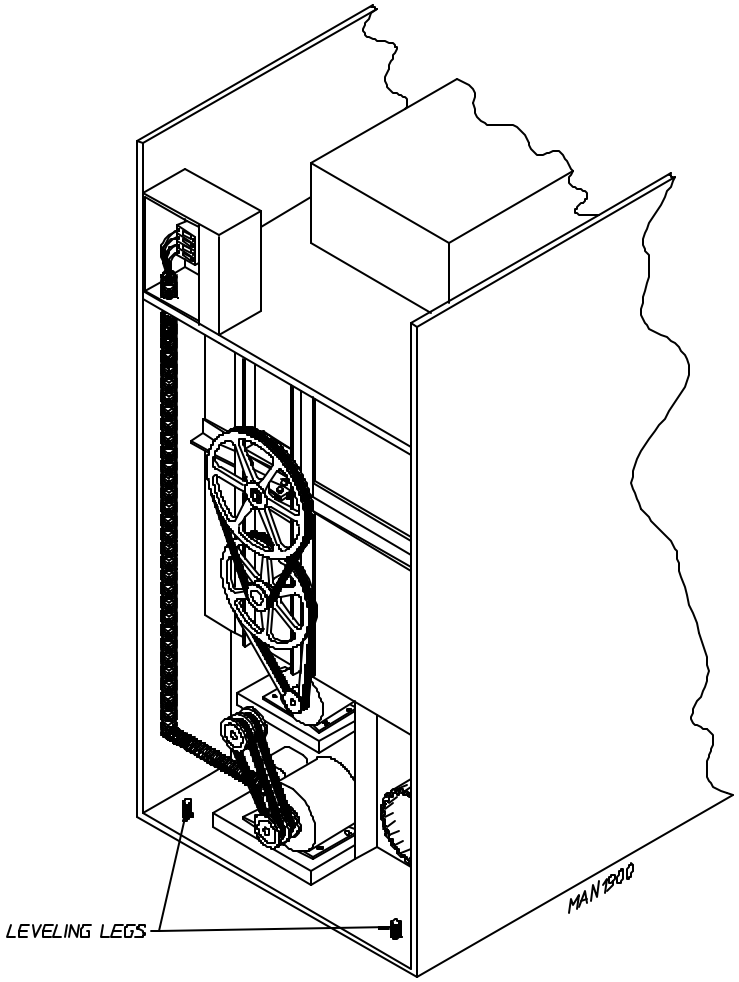
B. UNPACKING/SETTING UP

Remove protective shipping material (i.e., plastic wrap, and optional shipping box) from dryer.

IMPORTANT: Dryer ***must be*** transported and handled in an upright position at **ALL** times.

The dryer can be moved to its final location with or without the skid attached. To un-skid the dryer, locate and remove the four (4) bolts securing the base of the dryer to the wooden skid. Two (2) are located at the rear base (remove the back panel for access), and two (2) are located in the bottom of the lint chamber. To remove the two (2) bolts located in the lint chamber area, remove lint drawer completely. (Refer to page 40 for lint drawer removal instructions.) Once the bolts are removed and the lint drawer is reinserted, slide the dryer off of the skid.

With the skid removed, to make it easier to slide the dryer into its final position, slightly lower **ALL** four leveling legs, so that the dryer will slide on the legs instead of the base frame.

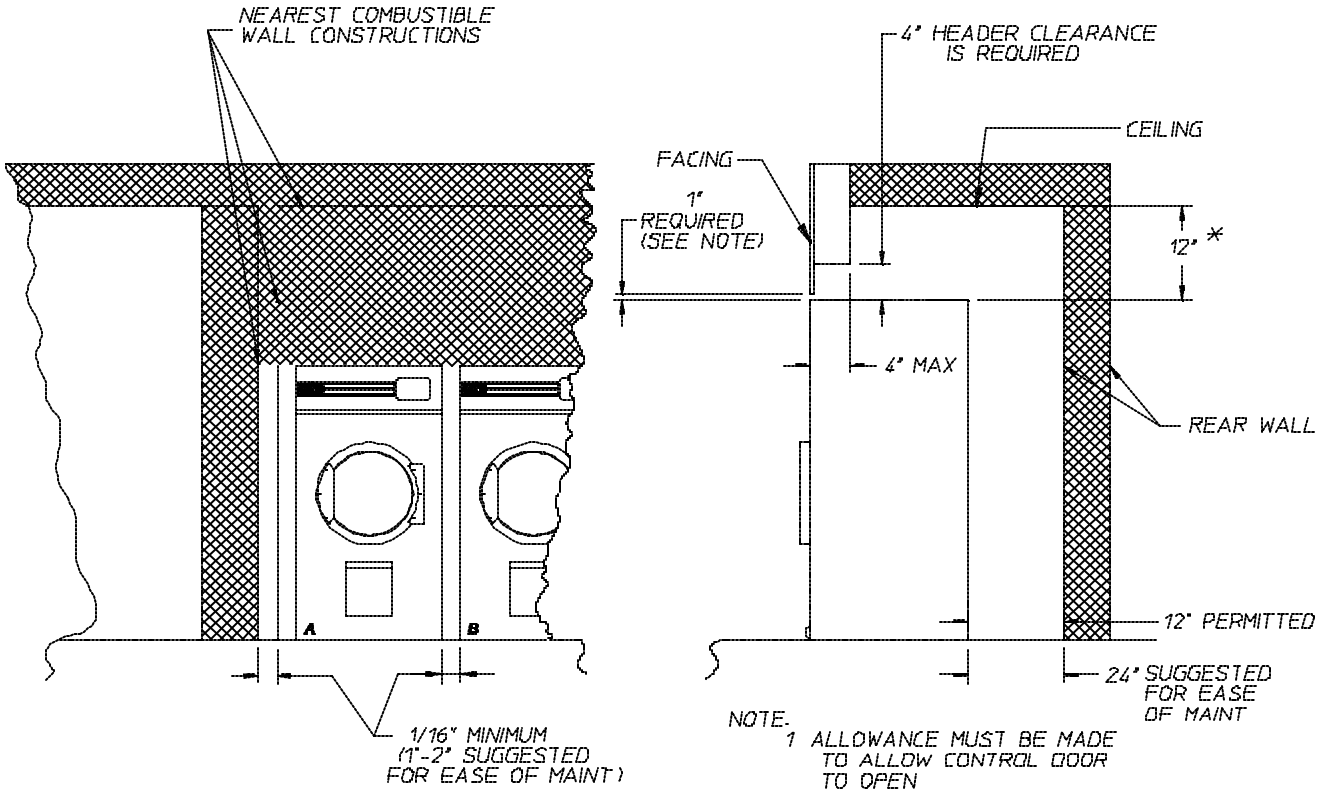


1. LEVELING DRYER

The dryer is equipped with four (4) leveling legs, one at each corner of the dryer base. Two (2) are located at the rear of the dryer base, and two (2) are located in the lint chamber. To increase bearing life and improve efficiency, the dryer **should be** tilted slightly to the rear.

C. DRYER ENCLOSURE REQUIREMENTS

Bulkheads and partitions **should be** made of noncombustible materials and **must be** located a minimum of twelve (12) inches (18 inches or more is recommended for ease of installation, maintenance , and service) above the dryer outer top, except along the front of the dryer which may be partially closed in if desired. The clearance between the bulkhead header and the dryer **must be** a minimum of four (4) inches and **must not** extend more than four (4) inches to the rear of the front. The bulkhead facing **must not** be closed in all the way to the top of the dryer. A one (1) inch clearance is required.



*IN CASES WHERE SPRINKLER HEADS ARE OVER THE DRYERS 18" IS SUGGESTED

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INSTALLATION. DRYER CLEARANCE TO ADJACENT WALL STRUCTURES.

NOTE: Allowances ***must be*** made for opening the control door.

Dryers may positioned side wall to side wall. However, a 1/16" minimum allowance **must be** made for opening and closing of the control door and the lint door. It is suggested that the dryer be positioned about two (2) feet away from the nearest obstruction for ease of installation, maintenance, and service (to be measured from the back guard. (Refer to the **illustration above** for details.)

NOTE: Air considerations are important for proper and efficient operation.

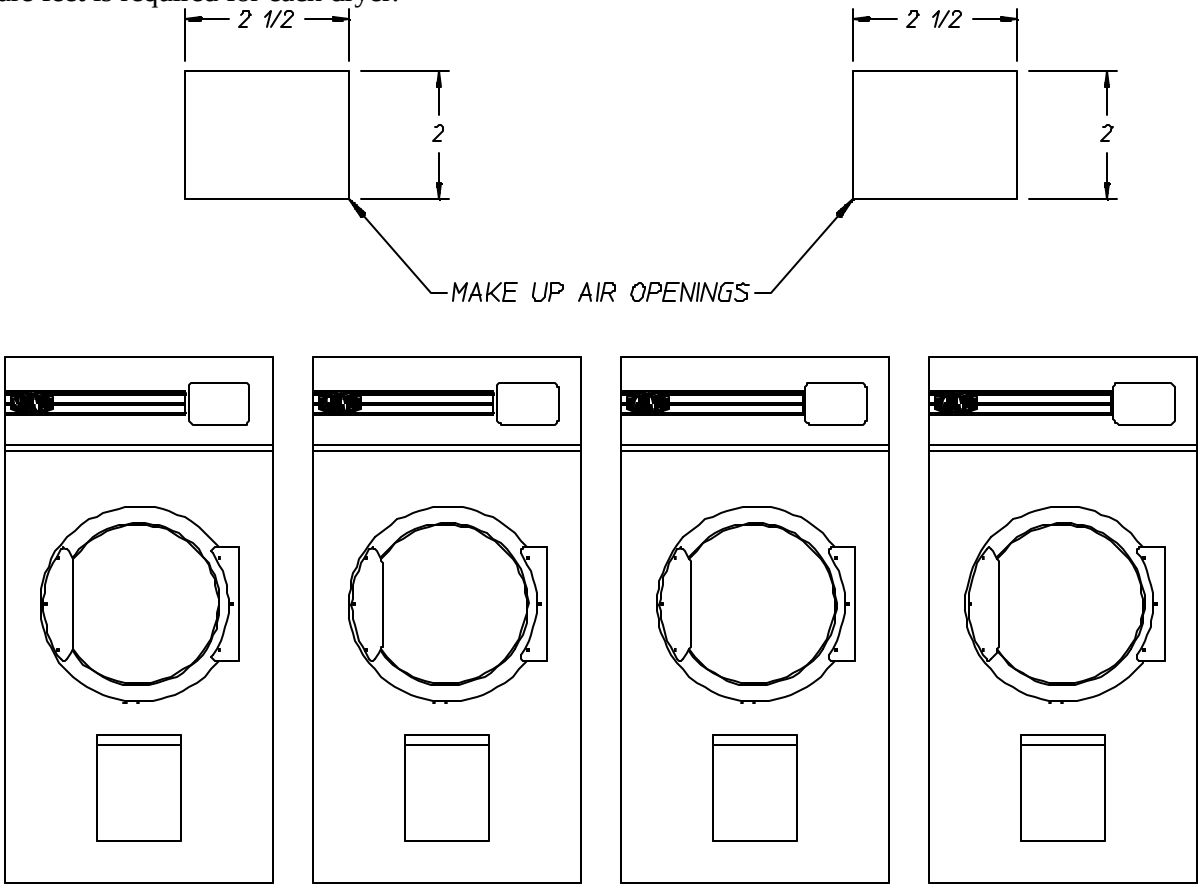
IMPORTANT:	Even though a minimum of only 12 inches is required, 18 inches or more is suggested. The additional clearance is advantageous for ease of installation and service.

IMPORTANT:	When fire sprinkler systems are located above the dryers, a minimum of 18 inches above the dryer console (module) is required. Dryers may be positioned side wall to side wall however, a 1/16" minimum allowance is required between dryers (or wall) for ease of installation and maintenance. Allowances ***must be*** made for the opening and closings of the control door and the lint door.

D. FRESH AIR SUPPLY

When the dryer is operating, it draws in room air, heats it, passes this air through the basket (tumbler), and exhausts it out of the building. Therefore, the room air **must be** continually replenished from the outdoors. If the makeup air is inadequate, drying time and drying efficiency will be adversely affected. Ignition problems and sail switch "fluttering" problems may result, as well as premature motor failure from overheating.

Air supply (makeup air) **must be** given careful consideration to assure proper performance of each dryer. An unrestricted source of air is necessary for each dryer. An air flow of 1,700 cfm (cubic feet per minute) **must be** supplied to each gas and electric dryer and 2,500 cfm (cubic feet per minute) **must be** supplied to each steam dryer. As a general rule, an unrestricted air entrance from the outdoors (atmosphere) of a minimum of 2-1/2 square feet is required for each dryer.



TYPICAL INSTALLATION SHOWING MAKE-UP AIR OPENINGS

To compensate for the use of registers or louvers used over the openings, this makeup air **must be** increased by approximately thirty-three percent (33%). Makeup air openings **should not be** located in an area directly near where exhaust vents exit the building.

It is not necessary to have a separate makeup air opening for each dryer. Common makeup air openings are acceptable. However, they **must be** set up in such a manner that the makeup air is distributed equally to **ALL** the dryers.

EXAMPLE: For a bank of four (4) dryers, two (2) unrestricted openings measuring 2 feet by 2-1/2 feet (10 square feet) is acceptable.

Allowances **must be** made for remote or constricting passageways or where dryers are located at excessive altitudes or predominantly low pressure areas.

IMPORTANT: Makeup air ***must be*** provided from a source free of dry cleaning solvents fumes. Makeup air that is contaminated by dry cleaning solvent fumes will result in irreparable damage the motors and other dryer components.

NOTE: Component failure due to dry cleaning solvent fumes will VOID THE WARRANTY.

E. EXHAUST REQUIREMENTS

1. General Exhaust Duct Work Information

Exhaust duct work **should be** designed and installed by a qualified professional. Improperly sized duct work will create excessive back pressure which results in slow drying, increased use of energy, overheating of the dryer, and shutdown of the burner by the airflow (sail) switches, burner hi-limits, or basket (tumbler) hi-heat thermostats.

CAUTION: DRYER ***MUST BE*** EXHAUSTED TO THE OUTDOORS.

CAUTION: IMPROPERLY SIZED OR INSTALLED EXHAUST DUCT WORK CAN CREATE A POTENTIAL FIRE HAZARD.

The duct work **should be** laid out in such a way that the duct work travels as directly as possible to the outdoors with as few turns as possible. Single or independent dryer venting is recommended.

When single drying venting is used the length of duct work from the dryer to the outside exhaust outlet **should not** exceed fifteen (15) feet. The minimum diameter of this duct work **must be** at least 14 inches In the case of multiple (common) dryer venting, the distance from the last dryer to the outside exhaust outlet **should not** exceed (15) feet. The shape of the duct work is not critical so long as the minimum cross-sectional area is provided. It is suggested that the use of 90° turns be avoided; use 30° and/or 45° angles instead. The radius of the elbows **should preferably be** 1-1/2 times the diameter of the duct. Including basket (tumbler) and dryer elbow connections or elbows used for outside protection from the weather, no more than two (2) elbows **should be** used in the exhaust duct run. If more than two (2) elbows are used, the cross sectional area of the duct work **must be** increased. **ALL** duct work **should be** smooth inside with no projections from sheet metal screws or other obstructions which will collect lint. When adding ducts, the duct to be added should overlap the duct to which it is to be connected. **ALL** duct work joints **must be** taped to prevent moisture and lint from escaping into the building. Inspection door **should be** installed at strategic points in the exhaust duct work for periodic inspection and clean-out of lint from the duct work.

ALL duct work **should be** smooth inside with no projections from sheet metal screws or other obstructions which will collect lint. When adding ducts, the duct to be added should overlap the duct to which it is to be connected. **ALL** duct work joints **must be** taped to prevent moisture and lint from escaping into the building. Inspection doors **should be** installed at strategic points in the exhaust duct work for periodic inspection and clean-out of lint from the duct work.

IMPORTANT:	Exhaust back pressure measured by a manometer in the exhaust duct ***should not*** exceed 0.3 inches of water column.

IMPORTANT:	Minimum duct work diameter is 14 inches.

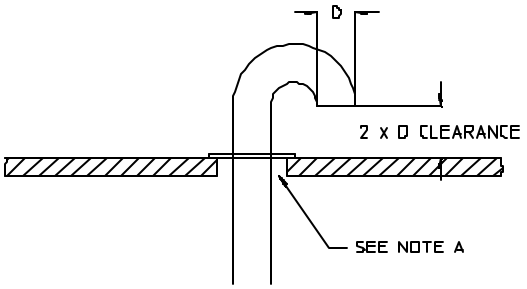
NOTE:	Where the exhaust duct work passes through a wall, ceiling or roof made of combustible materials, the opening **must be** 2 inches larger (all the way around) than the duct. The duct must be centered within this opening.

Outside Duct Work Protection

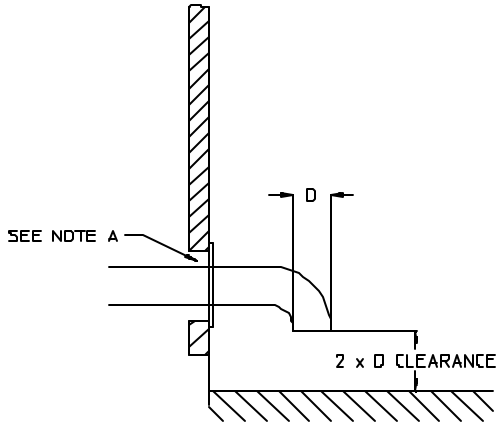
1. To protect the outside end of horizontal duct work from the weather, a 90º elbow bent downward **should be** installed where the exhaust exits the building. If the duct work travels vertically up through the roof, it **should be** protected from the weather by using a 180º turn to point the opening downward. In either case, allow at least twice the diameter of the duct opening and the nearest obstruction.

IMPORTANT:	**DO NOT** use screens or caps on the outside of opening of exhaust duct work.

VERTICAL DUCTING



HORIZONTAL DUCTING



NOTE "A" OPENING MUST BE TWO (2) INCHES LARGER THAN DUCT (ALL THE WAY AROUND). THE DUCT MUST BE CENTERED WITHIN THIS OPENING

MAN0731

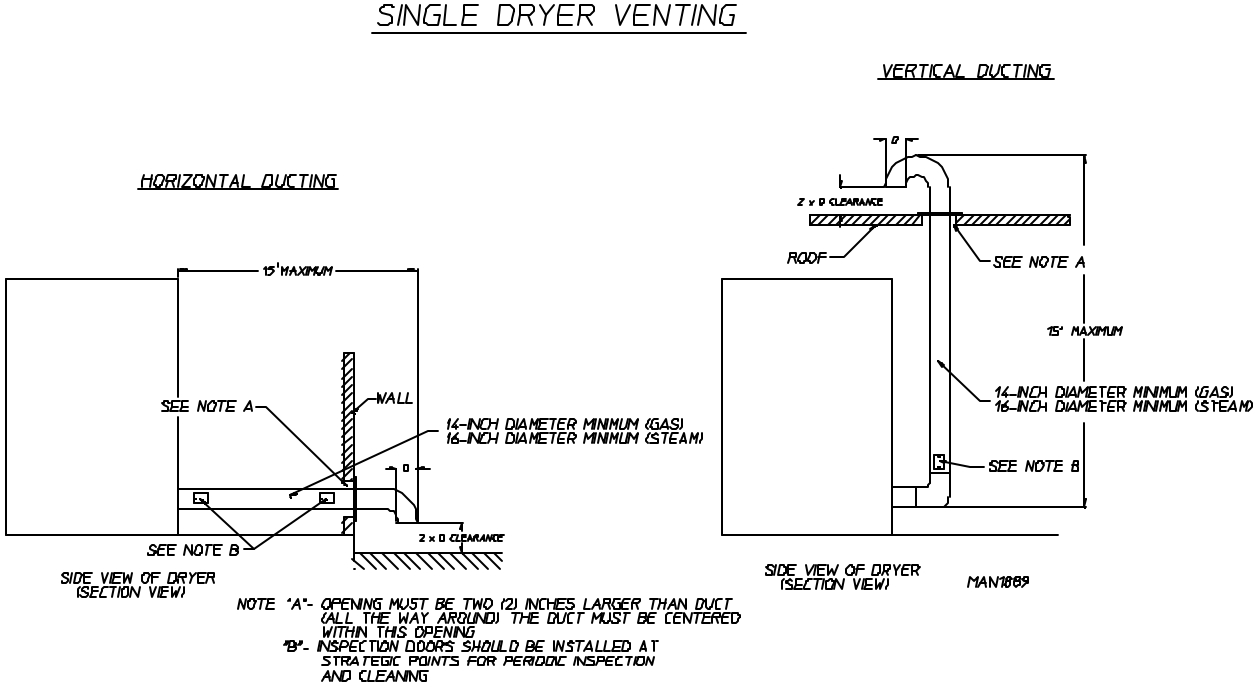
2. Single Dryer Venting

Where possible, it is suggested to provide a separate exhaust duct for each dryer. The exhaust duct **should be** laid out in such a way that the duct work travels as directly as possible to the outdoors with as few turns as possible. It is suggested that the use of 90° turns in the ducting be avoided; use 30° and/or 45° angles instead. The shape of the exhaust duct work is not critical so long as the minimum cross section area is provided.

IMPORTANT: For a dryer that is vented horizontally, the minimum duct size for a gas dryer is 14 inches for a round duct or 12-1/2" for a square duct. The minimum duct size for a steam dryer is 10 inches for a round duct or 14-1/2" x 14-1/2" for a square duct. ***THE DUCT SIZE MUST NOT BE REDUCED ANYWHERE DOWN STREAM OF THE DRYER.***

IMPORTANT: Exhaust back pressure measured by a manometer at each basket (tumbler) exhaust duct area ***should not*** exceed 0.3 inches of water column.

It is suggested that the duct work from each dryer not exceed fifteen (15) feet with no more than two (2) elbows (excluding dryer connections and outside exhaust outlets). If the duct work exceeds fifteen (15) feet or has numerous elbows, the cross section area of the duct work **must be** increased in proportion to the length and number of elbows in it. In calculating duct size, the cross section area of a square or rectangular duct **must be** increased by twenty (20) percent for each additional fifteen (15) feet. The diameter of a round exhaust duct **should be** increased ten (10) percent for each additional fifteen (15) feet. Each 90º elbow is equivalent to an additional thirty (30) feet, and each 45º elbow is equivalent to an additional fifteen (15) feet.



IMPORTANT: For extended duct work runs, the cross section area of the duct work can only be increased to an extent. When the duct work approaches the maximum limits noted in this manual, a professional heating venting air conditioning (HVAC) firm ***should be*** consulted for proper venting information.

ALL duct work **should be** smooth inside with no projections from sheet metal screws or other obstructions which will collect lint. When adding ducts, the duct to be added should overlap the duct to which it is to be connected. **ALL** duct work joints **must be** taped to prevent moisture and lint from escaping into the building. Inspection doors **should be** installed at strategic points in the exhaust duct work for periodic inspection and clean-out of lint from the duct work.

NOTE: Where the exhaust duct passes through a wall, ceiling, or roof made of combustible materials, the opening ***must be*** 2 inches larger (all the way around) than the duct. The duct ***must be*** centered within this opening.

a. Outside Duct Work Protection

1) To protect the outside end of horizontal duct work from the weather, a 90° elbow bent downward **should be** installed where the exhaust exits the building. If the duct work travels vertically up through the roof, it **should be** protected from the weather by using a 180º turn to point the opening downward. In either case, allow at least twice the diameter of the duct between the duct opening and the nearest obstruction.

IMPORTANT: ***DO NOT*** use screens or caps on the outside of opening of exhaust duct work.

3. MULTIPLE DRYER (common) VENTING

If it is not feasible to provide separate exhaust ducts for each dryer, ducts from individual dryers may be channeled into a "common main duct." The individual ducts should enter the bottom or side of the main duct at an angle not more than 45º in the direction of air flow and **should be** spaced at least 38-1/4 inches apart. The main duct **should be** tapered, with the diameter increasing before each individual duct (14 inch minimum for gas models and 16 inch minimum for steam models) is added.

IMPORTANT: No more than four (4) dryers **should be** connected to one main common duct.

The main duct may be any shape so long as the minimum cross sect is provided. The illustration on page 18 shows the minimum cross section area for multiple dryer round or square venting. These figures **must be** increased 10 square inches when rectangular main ducting is used, and the ratio of duct width to depth **should not** be greater than 3-1/2 to 1. These figures **must be** increased in proportion if the main duct run to the last dryer to where it exhausts to the outdoors is unusually long (over fifteen [15] feet) or has numerous (more than two [2]) elbows in it. In calculating duct work size, the cross section area of a square or rectangular duct **must be** increased twenty (20) percent for each additional fifteen (15) feet. The diameter of a round exhaust **must be** increased ten (10) percent for each additional fifteen (15) feet. Each 90º elbow is equivalent to an additional thirty (30) feet and each 45º elbow is equivalent to an additional fifteen (15) feet.

IMPORTANT: For extended duct work runs, the cross section area of the duct work can only be increased to an extent. Maximum proportional duct work runs, **cannot** exceed fifteen (15) feet more than the original limitations of fifteen (15) feet with two (2) elbows. When the duct work approaches the maximum limits as noted in this manual, a professional HVAC firm **should be** consulted for proper venting information.

IMPORTANT: Exhaust back pressure measured by a manometer at each dryer exhaust duct area **should not** exceed .3" of water column.

The duct work **should be** smooth inside with projections from sheet metal screws or other obstructions which will collect lint. When adding ducts, the duct to be added should overlap the duct to which it is to be connected . **ALL** duct work joints **must be** taped to prevent moisture and lint from escaping into the building. Inspection doors **should be** installed at strategic points in the exhaust duct work for periodic inspection and clean-out of lint from the duct work.

NOTE: Where the exhaust passes through a wall, ceiling, or roof made of combustible materials, the opening **must be** 2 inches larger (all the way around) than the duct. The duct **must be** centered within this opening.

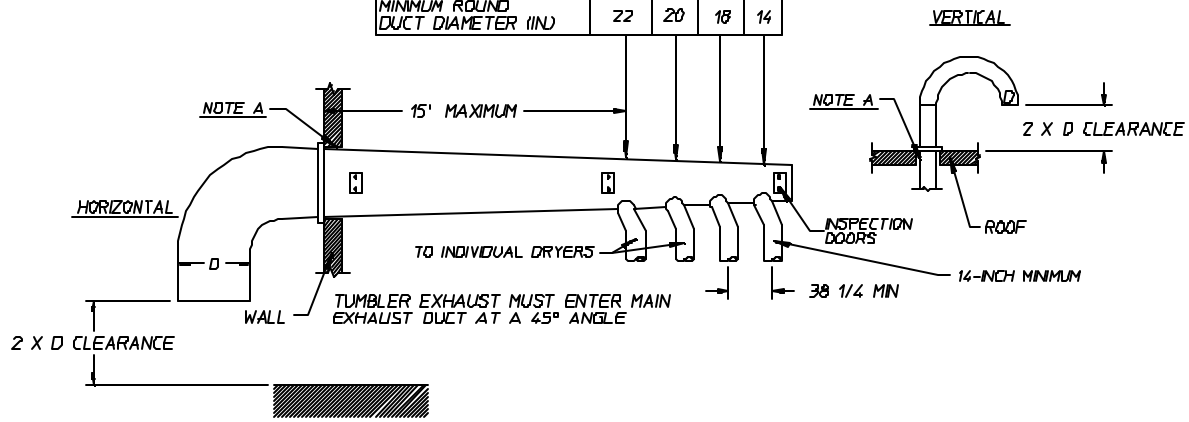
a. Outside Duct Work Protection

1. To protect the outside end of the horizontal duct work from the weather, a 90º elbow bent downward **should be** installed where the exhaust exits the building. If the exhaust duct work travels vertically up through the roof, it **should be** protected from the weather by using a 180º turn to point the opening downward. In either case, allow at least twice the diameter of the duct between the duct opening and nearest obstruction.

IMPORTANT: **DO NOT** use screens, louvers, or caps on the outside opening of exhaust duct work.

MULTIPLE DRYER VENTING (MLG-82) WITH 12" DIAMETER (1700 CFM) EXHAUST CONNECTIONS AT COMMON DUCT

NO. OF DRYERS	4	3	2	1
MINIMUM CROSS SECTION AREA (SQ.IN.)	380	315	255	155
MINIMUM ROUND DUCT DIAMETER (IN.)	22	20	18	14

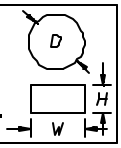


IMPORTANT: NO MORE THAN 4 DRYERS CAN BE CONNECTED TO ONE COMMON DUCT (VENT).

FORMULAS TO CALCULATE DUCTING CROSS SECTIONAL AREA

CROSS SECTIONAL AREA OF A ROUND DUCT = .785 x D^2 WHERE D = DIAMETER OF THE DUCT

CROSS SECTIONAL AREA OF A RECTANGULAR DUCT = W x H WHERE W = WIDTH AND H = HEIGHT.



NOTE A. OPENING MUST BE TWO (2) INCHES LARGER THAN DUCT (ALL THE WAY AROUND). THE DUCT MUST BE CENTERED WITHIN THIS OPENING.

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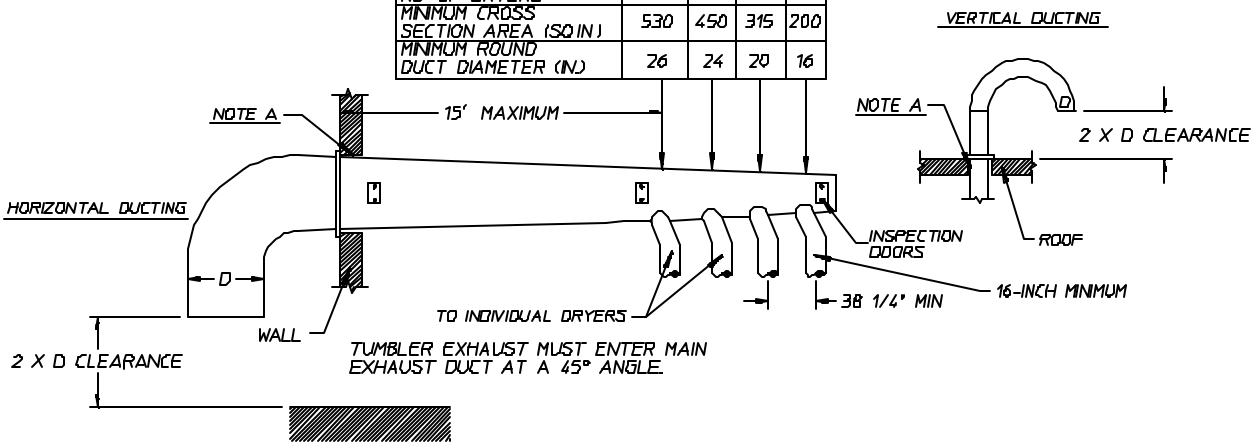
MULTIPLE DRYER VENTING (MLG-82) WITH 12" DIAMETER (2500 CFM) EXHAUST CONNECTIONS AT COMMON DUCT

NO. OF DRYERS	4	3	2	1
MINIMUM CROSS SECTION AREA (SQ.IN.)	530	450	315	200
MINIMUM ROUND DUCT DIAMETER (IN.)	26	24	20	16

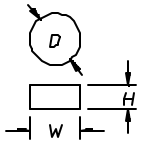


IMPORTANT. NO MORE THAN 4 DRYERS CAN BE CONNECTED TO ONE COMMON DUCT (VENT)

FORMULAS TO CALCULATE DUCTING CROSS SECTIONAL AREA

CROSS SECTIONAL AREA OF A ROUND DUCT = .785 x D^2 WHERE D = DIAMETER OF THE DUCT

CROSS SECTIONAL AREA OF A RECTANGULAR DUCT = W x H WHERE W = WIDTH AND H = HEIGHT.



NOTE A OPENING MUST BE TWO (2) INCHES LARGER THAN DUCT (ALL THE WAY AROUND) THE DUCT MUST BE CENTERED WITHIN THIS OPENING

MAN4124

F. ELECTRICAL INFORMATION

1. Electrical Requirements

It is your responsibility to have **ALL** electrical connections made by a properly licensed and competent electrician to assure that the electrical installation is adequate and conforms with local and state regulations or codes. In the absence of such codes, **ALL** electrical connections, material, and workmanship **must conform** to the applicable requirements of the National Electrical Code ANSI/NFPA NO.70-LATEST EDITION..

IMPORTANT: Failure to comply with these codes or ordinances, and/or the requirements stipulated in this manual can result in personal injury or component failure.

NOTE: Component failure due to improper installation will VOID THE WARRANTY.

Each dryer **should be** connected to an independently protected branch circuit. THE DRYER ***MUST BE*** CONNECTED WITH COPPER WIRE ONLY. ***DO NOT use aluminum wire which could cause a fire hazard.*** The copper conductor wire/cable **must be** of proper ampicity and insulation in accordance with electric codes for making **ALL** service connections.

NOTE: The use of aluminum wire will VOID THE WARRANTY.

IMPORTANT: A separate circuit servicing each dryer ***must be*** provided.

2. Electrical Service Specifications

MLG-82 (Gas)
MLS-82 (Steam)

ELECTRIC SERVICE SPECIFICATIONS (PER DRYER)

IMPORTANT: 208 VAC and 240 VAC **ARE NOT THE SAME. When ordering, specify *exact voltage*.**

NOTE: A. Fuse ratings are dual-element, time-delay, current limiting, class RK1 or RK5 **ONLY**.
B. Circuit breakers are thermal magnetic (industrial) type **ONLY**. For others, calculate/verify correct breaker size according to appliance amp draw rating and type of breaker used.

SERVICE VOLTAGE	PHASE	WIRE SERVICE	APPROX. AMP DRAW		MINIMUM WIRE SIZE*	CIRCUIT BREAKER
			60 Hz	50 Hz		
208	3ø	3	13.2	--	#14	25
240	3ø	3	12.2	14	#14	25
380	3ø	3	--	7.3	#14	15
416	3ø	3	--	7.1	#14	15
460/480	3ø	3	6.6	--	#14	15

* AWG Stranded Wire Type for individual lengths less than 100 feet.

IMPORTANT: The dryer ***must be*** connected to the electric supply shown on the data label that is affixed to the back of the dryer, at the upper right hand corner. In the case of 208 VAC or 240 VAC, the supply voltage ***must match*** the electric service specifications of the data label ***exactly***.

IMPORTANT: The wire size ***must be*** properly sized to handle the related current.

WARNING: **208 VAC and 240 VAC ARE NOT THE SAME.** Any damage done to dryer components due to improper voltage connections will automatically VOID THE WARRANTY.

NOTE: **ADC** reserves the right to make changes in specifications at any time, without notice or obligation.

3. Electrical Connections

NOTE: A wire diagram is located in the front electrical control box for connection data.

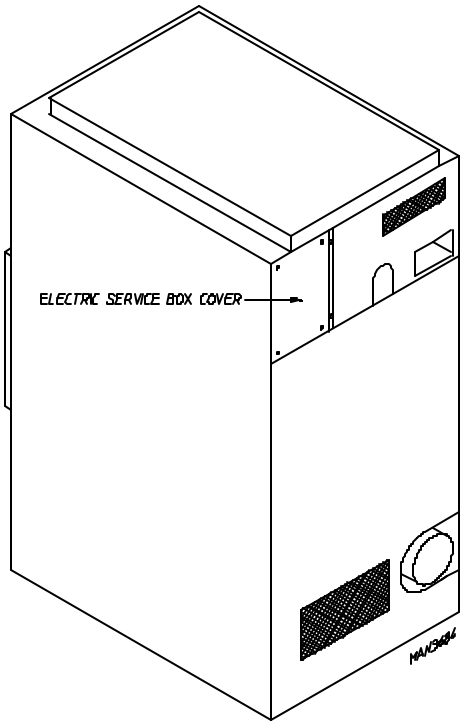
a. GAS MODELS and STEAM MODELS ONLY

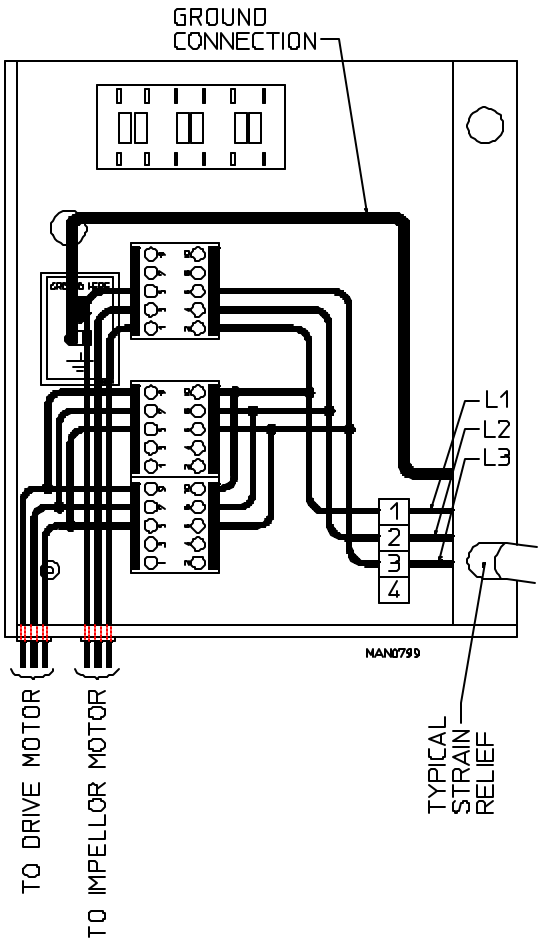
NOTE: A CIRCUIT SERVING EACH DRYER *MUST BE* PROVIDED.

1) Single-phase (1ø) Wiring Connections (Hookup)

The electrical connections on **ALL** single-phase (1ø) gas models and steam model dryers are made into the rear service box located at the upper left area of the dryer.

For gas and steam dryers manufactured for operation at 3 phase (3ø), the electrical connections are made at the power distribution block located in the service box at the rear, upper left corner of the dryer. To gain access to the service box and contactor, the service box cover **must be** removed.





Providing local codes permit, power to the dryer can be made by the use of a flexible U.L. listed cord or pigtail (wire size **must** conform to the rating of the dryer), or the dryer can be hard wired directly to the service breaker. In all cases, a strain relief **should be** used both where the wiring enters the dryer and the service box.

G. GAS INFORMATION

It is your responsibility to have all plumbing connections made by a qualified professional to assure the gas plumbing installation is adequate and conforms with local and state regulations or codes. In the absence of such codes, all plumbing connections, material, and workmanship must conform to the applicable requirements of the National Fuel Gas Code ANSI Z223.1-LATEST EDITION.

IMPORTANT: Failure to comply with these codes or ordinances, or the requirements stipulated in this manual, can resulted in personal injury and improper operation of the dryer.

The dryer and its individual shut-off valve **must be** disconnected from the gas supply piping system during any pressure testing of that system at test pressures in excess of 1/2 psig (3.5 kPa). The dryer **must be** isolated form the gas supply piping system by closing its individual manual shut-off valve during any pressure testing of the gas supply piping system at test pressures equal to or less than 1/2 psig (3.5 kPa).

IMPORTANT: Failure to isolate or disconnect dryer from supply as noted can cause irreparable damage to the gas valves **VOIDING THE WARRANTY**.

WARNING: FIRE or EXPLOSION COULD RESULT.

1. GAS SUPPLY

The gas dryer installation must meet the American National Standard: National Fuel Gas Code Z223.1-LATEST EDITION, as well as local codes and ordinances and **must be** done by a qualified professional.

NOTE: Undersized gas piping will result in ignition problems, slow drying increased use of energy, and can create a safety hazard.

The dryer **must be** connected to the type of heat or gas indicated on the dryer label affixed to the back side of the control (service) door. If this information does not agree with the type of gas available, **do not** operate dryer. Contact the distributor who sold the dryer or the ADC factory.

IMPORTANT: Any burner changes or conversions **must be** made by a qualified professional.

The input rating shown on the dryer data label is for elevations of up to 2,000 feet, unless elevation requirements of over 2,000 feet were specified at the time the dryer order was placed with the factory. The adjustment or conversion of dryers in the field for elevations over 2,000 feet are made by changing each burner orifice. If this conversion is necessary, contact the distributor who sold the dryer or contact the ADC factory.

2. TECHNICAL GAS DATA

a. Gas Specifications

	Type of Gas	
	Natural	Liquid Propane
Manifold Pressure	3.5 inches W.C.	10.5 inches W.C.
Inline Pressure	6.0 - 12.0 inches W.C.	10.5 inches W.C.

a. Gas Connections:

Inlet connection	1 inch N.P.T.
Inlet supply size	1 inch N.P.T. (minimum)
Btu/hr input (per dryer)	270,000

1. Natural Gas

Regulation is controlled by the dryer's gas valve's internal regulator. Incoming supply pressure **must be** consistent between a minimum of 6.0 inches and a maximum of 12 inches water column pressure.

2. Liquid Propane (L.P.) Gas

Dryers made for use with L.P. gas have the gas valve's internal pressure regulator blocked open so that the gas pressure **must be** regulated upstream of the dryer. The pressure measured at each gas valve pressure tap **must be** a consistent 11 inches water column. There is no regulator or regulation provided in an L.P. dryer. The water column pressure **must be** regulated at the source (L.P. tank) or an external regulator **must be** added to each dryer.

		Type of Gas						L.P. Conversion Kit Part Number
		Natural			Liquid Propane			
Model Number	BTU Per Hour Rating	Qty.	D.M.S.*	Part Number	Qty.	D.M.S.*	Part Number	
MLG-82	270,000	4	#23	140856	4	#41	140811	882119

* D.M.S. (Drill Material Size) equivalents are as follows:

Natural Gas	@23 = .154"
Liquid Propane Gas	@41 = .096"

3. PIPING AND CONNECTIONS

ALL components and materials must conform to national fuel gas code specifications. It is important that gas pressure regulators meet applicable pressure requirements and that gas meters be rated for the total amount of all the appliance btu's being supplied.

The dryer is provided with a 1 inch N.P.T. inlet pipe connection extending out the back area of the burner box. The minimum pipe size connection (supply line) to the dryer is one inch N.P.T. For ease of serving, the gas supply line of each dryer **must have** its own shut-off valve.

The size of the main gas supply line (header) will vary depending on the distance this line travels from the gas meter or, in the case of L.P. gas, the supply tank, other gas-operated appliances on the same supply line, etc. Specific information regarding supply line size **should be determined** by the gas supplier.

NOTE: Undersized gas supply piping can create a low or inconsistent pressure which will result in erratic operation of the burner ignition system.

Consistent gas pressure is essential at **ALL** gas connections. It is recommended that a one inch pipe gas loop be installed in the supply line serving a bank of dryers. An in-line pressure regulator **must be** installed in the gas supply line (header) if the (natural) gas pressure exceeds 12 inches of water column pressure.

IMPORTANT: A consistent water column pressure of 3.5 inches for natural gas and 10.5 inches for liquid propane dryers is required at the gas valve pressure tap of each dryer for proper and safe operation.

A 1/8 inch N.P.T. plugged tap, accessible for a test gauge connection, **must be** installed in the main gas supply line immediately upstream of each dryer.

IMPORTANT: Pipe joint compounds that resist the action of natural and L.P. gases **must be** used.

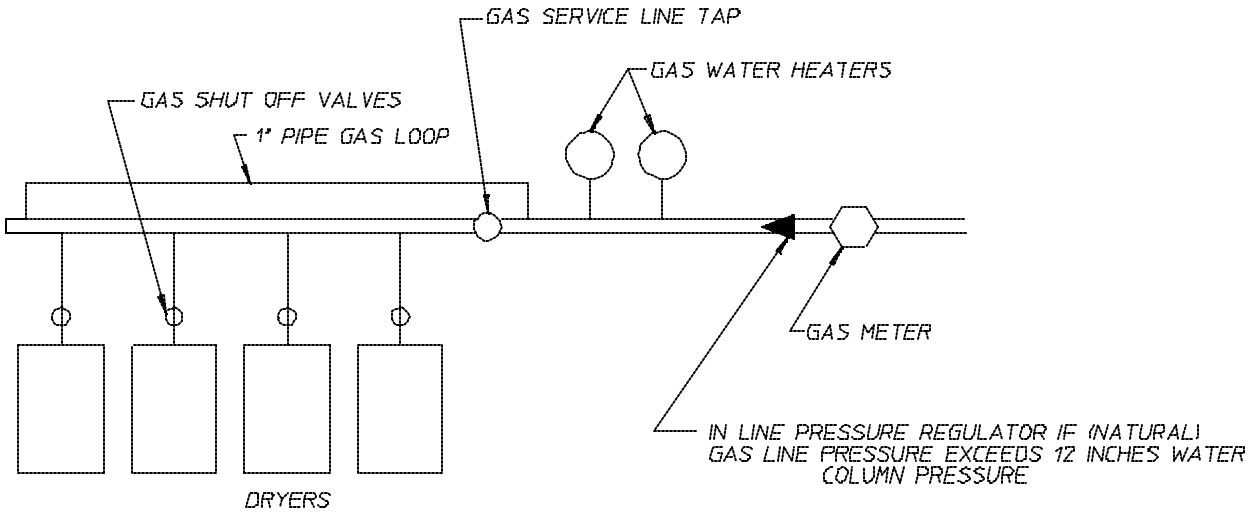
WARNING: NEVER TEST FOR GAS LEAKS WITH A FLAME.

ALL components and materials must conform to National Fuel Gas Code Specifications ANSI Z223.1-LATEST EDITION. It is important that gas pressure regulators meet applicable pressure requirements, and gas meters be rated for the total amount of appliance but's being supplied.

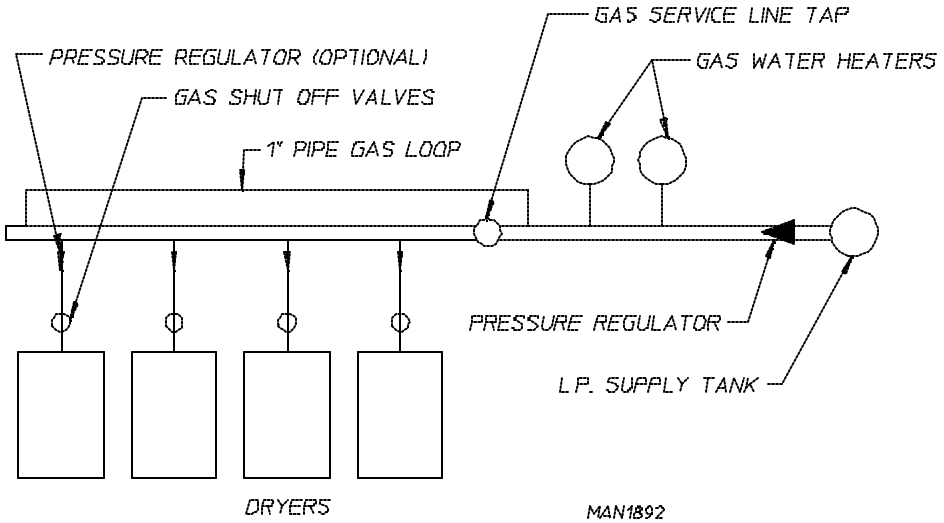
IMPORTANT: The dryer and its individual shut-off valve **must be** disconnected from the gas supply piping system during any pressure testing of that system at test pressures in excess of 1/2 psig (3.5 kPa).

NOTE: The dryer **must be** isolated from the gas supply piping system by closing its individual manual shut-off valve during any pressure testing of the gas supply piping system at test pressures equal to or less than 1/2 psig (3.5 kpa).

TYPICAL NATURAL GAS INSTALLATION



TYPICAL L.P. GAS INSTALLATION



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H. STEAM INFORMATION

It is your responsibility to have all steam plumbing connections made by a qualified professional to assure that the installation is adequate and conforms with local and state regulations or codes.

IMPORTANT: Failure to comply with the requirements stipulated in this manual can result in component failure which will VOID THE WARRANTY.

NOTE: The ML-82 is manufactured with a pneumatic (piston) damper system which requires an external supply of clean, dry, regulated air (80 psi ±10 psi). Refer to **Steam Damper Air System Connections**, **Section H, item 3.**

IMPORTANT: STEAM PH LEVEL – The normal PH level for copper type steam coils must be maintained between a value of 8.5 to 9.5. For steel type steam coils, the PH level must be maintained between a value of 9.5 and 10.5. These limits are set to limit the acid attack of the steam coils.

NOTE: Coil failure due to improper PH level will VOID THE WARRANTY.

1. STEAM REQUIREMENTS, HIGH PRESSURE

   a. Inlet 1-1/4 inch supply line connection – qty. one (1) at top manifold.

   b. Return 1-1/4 inch return line connection – qty. one (1) at bottom manifold.

Operating Steam Pressure	
Maximum	125 psig
Minimum	100 psig*
Heat Input (Normal Load)	7 Bhp
Consumption (Approximate)	239 lbs/hr

2. INSTALLATION INSTRUCTIONS

To ensure an adequate supply of steam in provided, be sure that the steam supply and steam return lines are sized and laid out as stipulated in this manual. Inadequate steam supply and steam return lines or improper steam plumbing will result in poor performance and can cause component failure. Clean, dry, regulated steam **must be** provided to the dryer.

IMPORTANT: Steam coil failure due to water hammer by wet steam VOIDS THE WARRANTY.

a. The pressure of the condensate in the steam supply will cause water hammer and subsequent heat exchanger (steam coil) failure. The steam supply connection into the main supply line **must be** made with a minimum 12 inch riser. This will prevent any condensate from draining towards the dryer.

b. The steam supply piping to the dryer **must include** a 12 inch rise along with a drip trap and check valve. This will prevent any condensate from entering the steam coil.

c. Flexible hoses or couplings **must be** used. The dryer vibrates slightly when it runs and this will cause the steam coil connections to crack if they are hard piped to the supply and return mains.

d. Shut-off valves for each dryer **should be** installed in the supply, return, and drip trap return lines. This will allow the dryer to be isolated from the supply and return mains if the dryer needs maintenance work.

e. Install an inverted bucket steam trap and check valve for each unit at least 12 inches below steam coil as close to the coil as possible.

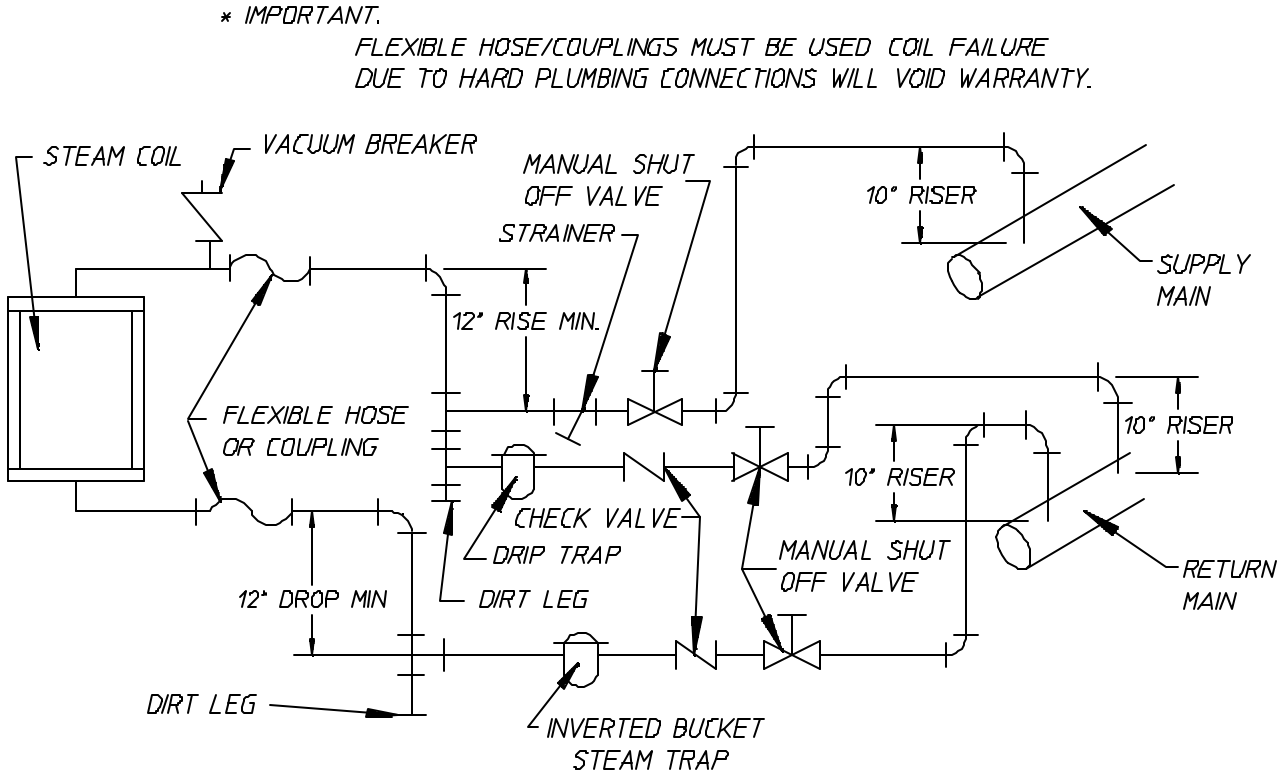
   1. A trap with a capacity of 1,000 pounds of condensate per hour at 126 psi is needed for each unit.

f. A 3/4" vacuum breaker **should be** installed for each unit in the piping. This will prevent the condensing steam from causing a vacuum inside the coil and possibly damaging the coil.

g. The supply and return lines **should be** insulated. This will save energy and provide for the safety of the operator and maintenance personnel.

h. Water pockets in the supply line, caused by low points, will provide wet steam to the coil possibly causing coil damage. **ALL** horizontal runs of steam supply piping **should be** pitched 1/4 inch for every one (1) foot back toward the steam supply header causing any condensate in the line to drain to the header. Install a bypass trap in any low point to eliminate wet steam.

IMPORTANT: Flexible hose and couplings **must be** used. Coil failure due to hard plumbing connections will VOID THE WARRANTY.



STEAM DAMPER SYSTEM

MAN1893

3. STEAM DAMPER AIR SYSTEM CONNECTIONS

The MLS-82 is manufactured with a pneumatic (piston) damper system which requires an external supply of compressed air. The air connection is made to the steam damper solenoid valve which is located at the rear inner top area of the dryer just above the electric service relay box.

a. Air Requirements

Compressed Air Supply	Air Pressure
Normal	80 psi
Minimum Supply	70 psi
Maximum Supply	90 psi

b. Air Connection

Air connection to system 1/8 inch N.P.T.

c. Air Regulation

No air regulation or filtration is provided with the dryer. External regulation and filtration of 80 psi **must be** provided. It is suggested that a regulator or filter gauge arrangement be added to the compressed air line just before the dryer connection. This is necessary to ensure that correct and clean air pressure is achieved.

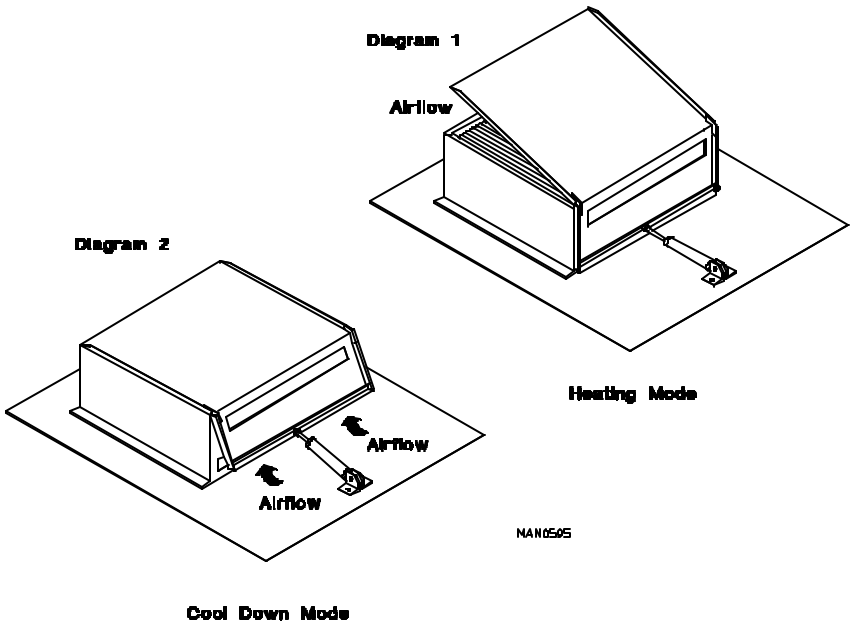
4. STEAM DAMPER SYSTEM OPERATION

The MLS-82 steam damper, as shown in the top illustration on **page 29** allows the coil to stay constantly charged eliminating repeated expansion and contraction. When the damper is opened, the air immediately passes through the already hot coil, providing instant heat to start the drying process. When the damper is closed, ambient air is drawn directly into the basket (tumbler), allowing a rapid cool down.

Diagram 1 shows the damper in the heating (open) mode, allowing heat into the basket (tumbler).

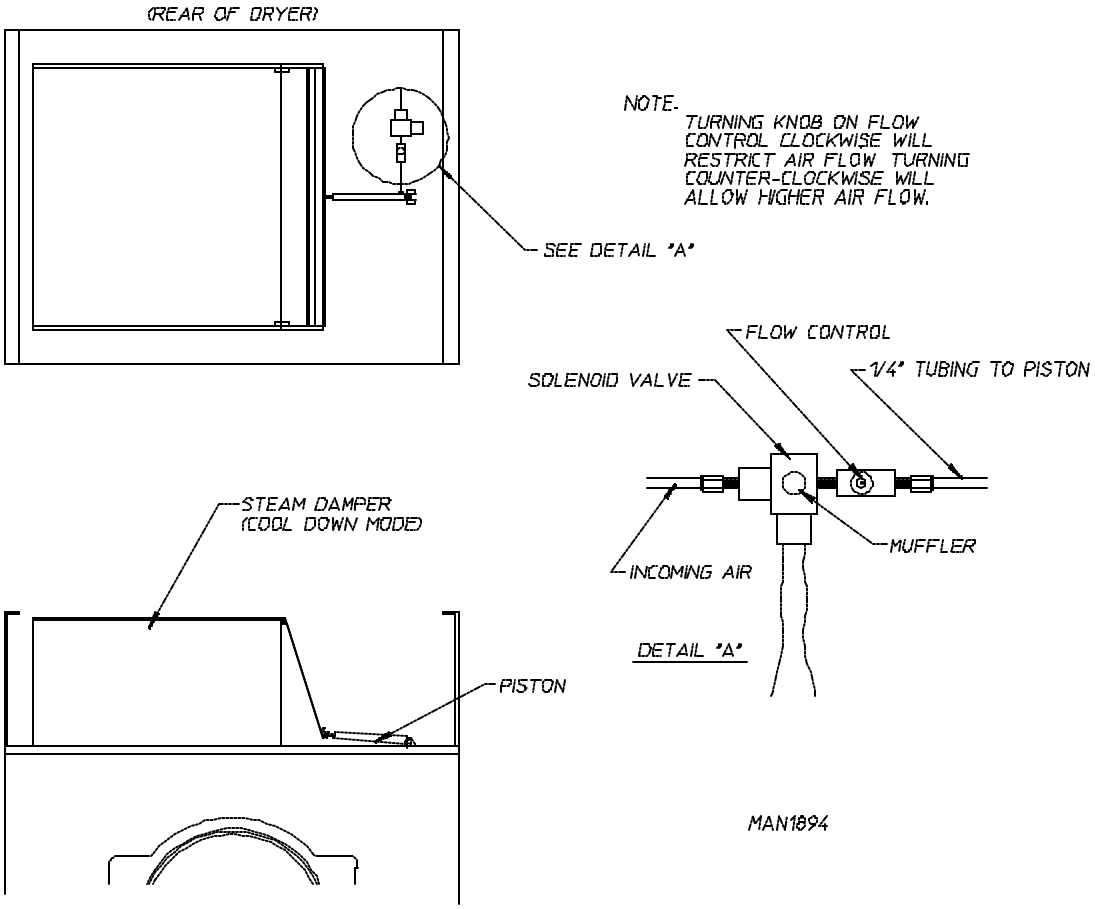
Diagram 2 shows the damper in the cool down (closed) mode, pulling ambient air directly into the basket (tumbler) without passing through the coils.

NOTE: With the dryer off or with no air supply, the damper is in the cool down mode as shown in diagram 2.



5. STEAM DAMPER AIR PISTON (FLOW CONTROL) OPERATION ADJUSTMENT

Although the damper operation was tested and adjusted prior to shipping at 80 psi, steam damper operation **must be** checked before the dryer is put into operation. Refer to **pages 31 and 32** for instructions to check steam damper operation. If damper air adjustment is necessary, locate flow control valve and make necessary adjustments as noted below.



I. PREPARATION FOR OPERATION/START-UP

The following items **should be** checked before attempting to operate the dryer:

1. Read **ALL** "**CAUTION**," "**WARNING**," and "**DIRECTION**" labels attached to the dryer.

2. Check incoming supply voltage to be sure that it is the same as indicated on the dryer data label affixed to the back side of the top front control/service door. In the case of 208 VAC or 230/240 VAC, ***THE SUPPLY VOLTAGE MUST MATCH THE ELECTRIC SERVICE EXACTLY***.

3. **GAS MODELS** - check to assure that the dryer is connected to the type of heat/gas indicated on the dryer data label.

4. **GAS & ELECTRIC MODELS** - the sail switch damper assembly was installed and adjusted at the factory prior to shipping. However, each sail switch adjustment **must be** checked to assure that this important safety control is functioning. (refer to **page 32** for Sail Switch Adjustment)

5. **GAS MODELS** - be sure that **ALL** gas shut-off valves are in the open position.

6. Be sure **ALL** side and base panels are on the dryer.

7. Check **ALL** service doors to insure that they are closed and secure.

8. Be sure the lint door is securely in place.

9. Rotate the basket (tumbler/drum) by hand to be sure it moves freely.

10. Check bolts, nuts, screws, terminals, and fittings for security.

11. STEAM MODELS - check to insure air supply (80 PSI) is connected to the dryers.

12. STEAM MODELS - check to insure **ALL** steam shut-off valves are open.

13. STEAM MODELS - check steam damper operation.

14. Check tumbler bearing set screws to insure they are **ALL** tight.

J. PREOPERATIONAL TESTS

ALL dryers are thoroughly tested and inspected before leaving the factory. However, a preoperational test **should be** performed before the dryer is publicly used. It is possible that adjustments have changed in transit or due to marginal location (installation) conditions.

1. Turn on electric power to the dryer.

   a. Open ALL shut-off valves (Gas Models Only)

2. Refer to the Operating Instructions for starting your particular model dryer.

3. *Gas Dryers*

   a. When a gas dryer is first started (during initial start-up), it has a tendency not to ignite on the first ignition attempt. This is because the gas supply piping is filled with air, so it may take a few minutes for the air to be purged from the lines.

NOTE: During the purging period, check to be sure that **ALL** gas shut-off valves are open.

NOTE: Gas dryers are equipped with a Hot Surface Ignition (HSI) system which has internal diagnostics. If ignition is not established within three times, the heat circuit in the HSI module will lock out until it is manually reset. To reset the HSI system, open and close the main door and restart the dryer.

   b. A gas pressure test **should be** taken at the gas valve pressure tap of each dryer to assure that the water column pressure is correct and consistent.

NOTE: Water column pressure requirements (measured at the pressure tap of the gas valve body):

Natural Gas ..... 3.5 Inches Water Column
L.P. Gas ..... 10.5 Inches Water Column

IMPORTANT: There is no regulator provided in an L.P. dryer. The water column pressure ***must be*** regulated at the source (L.P. tank), or an external regulator ***must be*** added to each dryer.

Steam Dryers

a. Check to insure that steam damper is functioning properly.

   1. The steam damper should not "slam" (open or closed) when it reaches the end of (piston) travel. Additionally, the steam damper should not bind and/or stop during travel. If either of these conditions occur, the flow control **must be** adjusted. Refer to the **bottom illustration** on **page 34** for air adjustment instructions.

Electrically Heated Dryers

a. Check to insure that electric oven/contactor assembly is activating.

4. Make a complete operational check of **ALL** safety related circuits:

a. Door Switch(es)

b. Hi-Limit thermostats

c. Sail switch (for Gas & Electric Models Only)

NOTE: To check for proper sail switch operation (for Gas & Electric Models Only), open the main door and while holding main door switch plunger in, start dryer. Dryer should start but heat circuit ***should not be*** activated (on). If the heat system is activated, the sail switch is improperly adjusted and ***must be*** adjusted by bending the actuator arm of the sail switch toward the burner box. If the actuator arm is bent too far toward the burner box of the dryer, the dryer may not have heat when needed. After any adjustment to the sail switch, the above procedure ***must be*** repeated to verify proper operation of the sail switch.

5. The dryer **should be** operated through one (1) complete cycle to assure that no further adjustments are necessary and that **ALL** components are functioning properly.

IMPORTANT: The dryer basket (tumbler) is treated with a protective coating. **ADC** suggests tumbling old clothes or material in the basket (tumbler), using a mild detergent to remove the protective coating.

6. Make a complete operational check of **ALL** operating controls.

a. For Microprocessor model check controller (computer) programs/selections...

1) Each microprocessor controller (computer) has been preprogrammed by the factory with the most commonly used parameter (program) selections. If computer program changes are required, refer to the computer programming manual which was shipped with the dryer.

7. Check the electric service phase sequence (three-phase [3ø] models only). While the dryer is operating, check to see if the blower wheel (impeller/fan) is rotating in the proper direction. Looking from the front, the blower wheel (impellor/fan) should spin in the clockwise direction. If it is, the phasing is correct. If the phasing is incorrect, reverse two (2) of the three (3) leads at connections L1, L2, L3 of the power supply to the dryer.

IMPORTANT: If the blower wheel (impellor/fan) is rotating in the wrong direction, this will not only drastically reduce drying efficiency, but it can also cause premature component failure.

8. REVERSING MODELS ONLY - basket (tumbler) dryer **should never be** operated with less than a 30 lb. load (dry weight). The size of the load will affect the coast-down and dwell (stop) times. The basket (tumbler) must come to a complete stop before starting in opposite direction.

a. Microprocessor Models

1. Spin and stop are not adjustable in the Automatic Mode and have been preprogrammed into the microprocessor controller (computer) for 150 second spin time in forward direction, 120 second in the reverse direction and a 5 second dwell (stop) time.

2. Spin and stop times are adjustable in the Manual (timed) Mode.

b. Dual Timer Models

1. Both dwell (stop) and basket (tumbler) spin time are adjustable. (refer to illustration on **page 44**.)

9. Check to insure that **ALL** set screws (i.e., tumbler drive, idler, etc.) are tight.

K. PREOPERATIONAL INSTRUCTIONS

1. To start the dryer:

a. Microprocessor (computer) dryers

1. The L.E.D. display will read "REAdY".

2. Press the "E" on the touch pad of the keyboard.

3. The dryer will start and the display will flash "dRYING MANUAL CYCLE E" "dRY TEMP 180F" "COOL TEMP 80F" "30 REMAIN" "dRUM TEMP"

Refer to the User's Manual for detailed operating instructions.

b. Dual Timer Dryers

1. Turn drying timer knob for a time of 20 minutes.

2. Select "High Temp."

3. Push "Push To Start" Switch.

4. To stop dryer, open the main door.

L. SHUT DOWN INSTRUCTIONS

If the dryer is to be shut down (taken out of service) for a period of time, the following **must be** performed:

1. Discontinue power to the dryer either at the external disconnect switch or the circuit breaker.
2. Discontinue the heat supply:
   a. ***GAS MODELS*** ... discontinue the gas supply.
      1) **SHUT OFF** external gas supply shut-off valve.
      2) **SHUT OFF** internal gas supply shut-off valve located in the gas valve burner area.
   b. ***STEAM MODELS*** ... discontinue the steam supply.
      1) **SHUT OFF** external (location furnished) shut-off valve.
      2) **SHUT OFF** internal steam valves in the supply lines and the return lines.

SECTION IV

SERVICE/PARTS INFORMATION

A. SERVICE

1. Service **must be** performed by a qualified trained technician, service agency, or gas supplier. If service is required, contact the distributor from whom the **ADC** equipment was purchased. If the distributor cannot be contacted or is unknown, contact the **ADC** Service Department for a distributor in your area.

NOTE: When contacting the **ADC** Service Department, be sure to give them the correct **model** and **serial numbers** so that your inquiry is handled in an expeditious manner.

B. PARTS

1. Replacement parts **should be** purchased from the distributor from whom the **ADC** equipment was purchased. If the distributor cannot be contacted or is unknown, contact the **ADC** Parts Department for a distributor in your area. Parts may also be purchased directly from the factory by calling the **ADC** Parts Department at (508) 678-9000 or you may FAX in your order at (508) 678-9447.

NOTE: When ordering replacement parts from the **ADC** dealer or the **ADC** factory be sure to give them the correct **model** and **serial numbers** so that your parts order can be processed in an expeditious manner.

SECTION V

WARRANTY INFORMATION

A. RETURNING WARRANTY CARD(S)

1. Before any dryer leaves the **ADC** factory test area, a warranty card (**ADC** Part No. 112254) is placed on the back side of the main door glass. These warranty cards are intended to serve the customer where we record the individual installation date and warranty information to better serve you should you file a warranty claim.

   a. If a warranty card (**ADC** Part No. 112254) did not come with your dryer, contact the **ADC** Warranty Department or **ADC** Service Department at (508) 678-9000.

B. PARTS

For a copy of the **ADC** commercial warranty covering your particular dryers, contact the **ADC** distributor from whom you purchased the equipment and request dryer warranty form **ADC** Part No. 450199. If the distributor cannot be contacted or is unknown, warranty information can be obtained from the factory by contacting the **ADC** Warranty Department at (508) 678-9000.

NOTE: Whenever contacting the **ADC** factory for warranty information, be sure to have the dryer's **model** and **serial numbers** available so that your inquiry can be handled in an expeditious manner.

C. RETURNING WARRANTY PARTS

ALL dryer or parts warranty claims or inquires **should be** addressed to the **ADC** Warranty Parts Department. To expedite processing, the following procedures **must be** followed:

1. No parts are to be returned to **ADC** without prior written authorization ("Return Material Authorization") from the factory.

NOTE: An R.M.A. ("Return Material Authorization") is valid for only sixty (60) days from date of issue.

   a. The R.M.A. issued by the factory, as well as any other correspondence pertaining to the returned parts, **must be** included inside the package with the failed merchandise.

2. Each part **must be** tagged with the following information:

   a. **Model** and **serial numbers** of the dryer from which part was removed.

   b. Nature of failure (be specific).

   c. Date of dryer installation.

   d. Date of part failure.

   e. Specify whether the part(s) being returned is for a replacement, a credit, or a refund.

NOTE: If a part is marked for a credit or a refund, the invoice number covering the purchase of the replacement part ***must be*** provided.

NOTE: Warranty tags **(ADC** Part No. 450064) are available at "no charge" from **ADC** upon request.

3. The company returning the part(s) must clearly note the complete company name and address on the outside of the package.

4. **ALL** returns **must be** properly packaged to insure that they are not damaged in transit. *Damage claims are the responsibility of the shipper.*

IMPORTANT: No replacements, credits or refunds will be issued for merchandise damaged in transit.

5. **ALL** returns **should be** shipped to the **ADC** factory in such a manner that they are insured and a proof of delivery can be obtained by the sender.

6. **Shipping charges are not the responsibility of ADC. ALL returns *should be* "prepaid" to the factory. Any "C.O.D. or "COLLECT" returns will not be accepted.**

IMPORTANT: No replacements, credits, or refunds will be issued if the claim **cannot** be processed due to insufficient information. The party filing the claim will be notified in writing, either by "FAX" or "CERTIFIED MAIL - Return Receipt Requested," as to the information necessary to process claim. If reply *is not* received by the **ADC** Warranty Department within thirty (30) days from the FAX/letter date, then no replacement, credit, or refund will be issued, and the merchandise **will be** discarded.

SECTION VI

ROUTINE MAINTENANCE

A. CLEANING

A program or schedule **should be** established for periodic inspection, cleaning, and removal of lint from various areas of the dryer, as well as throughout the duct work system. The frequency of cleaning can best be determined from experience at each location. Maximum operating efficiency is dependent upon proper air circulation. The accumulation of lint can restrict this air flow. If the guidelines in this section are met, an **ADC** dryer will provide may years of efficient, trouble-free, and - most importantly - safe operation.

WARNING: LINT FROM MOST FABRICS IS HIGHLY COMBUSTIBLE. THE ACCUMULATION OF LINT CAN CREATE A POTENTIAL FIRE HAZARD.

WARNING: KEEP DRYER AREA CLEAR AND FREE FROM COMBUSTIBLE MATERIALS, GASOLINE, and OTHER FLAMMABLE VAPORS and LIQUIDS.

NOTE: Suggested time intervals shown are for average usage which is considered six (6) to eight (8) operational (running) hours per day.

SUGGESTED CLEANING SCHEDULE

EVERY THIRD or FOURTH LOAD

Clean the lint screen every third or fourth load. A clogged lint screen will cause poor dryer performance. The lint screen is located behind the lint door in the base of the dryer. Open the lint door, brush the lint off of the lint screen, and remove the lint. Inspect the lint screen and replace if torn.

NOTE: The frequency of cleaning the lint screens can best be determined from experience at each location.

WEEKLY

Clean lint accumulation from the lint chamber, thermostat, and microprocessor temperature sensor (sensor bracket) area.

WARNING: TO AVOID HAZARD OF ELECTRICAL SHOCK, DISCONTINUE ELECTRICAL POWER SUPPLY TO THE DRYER.

STEAM DRYERS

Clean the steam coil fins. Suggest using compressed air and a vacuum cleaner with brush attachment.

NOTE: ***When cleaning steam coil fins, be careful not to bend the fins.*** If the fins are bent, straighten by using a ***fin comb***, which is available from any local air conditioning supply house.

90 DAYS

1. Remove lint from around basket (tumbler), drive motors, and surrounding areas.

2. Remove lint from gas valve burner area with a dusting brush or vacuum cleaner attachment.

3. Clean any lint accumulation in and around both the blower and drive motor casing openings.

NOTE: To prevent damage, avoid cleaning or touching the hot surface ignitor assembly.

EVERY 6 MONTHS

Inspect and remove lint accumulation in customer furnished exhaust duct work system and from dryers internal exhaust ducting.

NOTE: THE ACCUMULATION OF LINT IN THE EXHAUST DUCT WORK CAN CREATE A POTENTIAL FIRE HAZARD.

NOTE: ***DO NOT*** OBSTRUCT THE FLOW OF COMBUSTION and VENTILATION AIR. CHECK CUSTOMER FURNISHED BACK DRAFT DAMPERS IN THE EXHAUST DUCT WORK. INSPECT and REMOVE ANY LINT ACCUMULATION WHICH CAN CAUSE THE DAMPER TO BIND or STICK.

NOTE: A back draft damper that is sticking partially closed can result in slow drying and shut-down of heat circuit safety switches or thermostats

NOTE: When cleaning the dryer cabinets, avoid using harsh abrasives. A product intended for the cleaning of appliances is recommended.

B. ADJUSTMENTS

7 DAYS AFTER INSTALLATION and EVERY 6 MONTHS THEREAFTER

Inspect bolts, nuts, screws, (bearing set screws), nonpermanent gas connections (unions, shut-off valves, orifices, and grounding connections). Motor and drive belts **should be** examined. Cracked or seriously frayed belts **should be** replaced. Tighten loose V-belts when necessary. Complete operational check of controls and valves. Complete operational check of **ALL** safety devices (door switches, lint drawer switch, sail switch, burner and hi-limit thermostats).

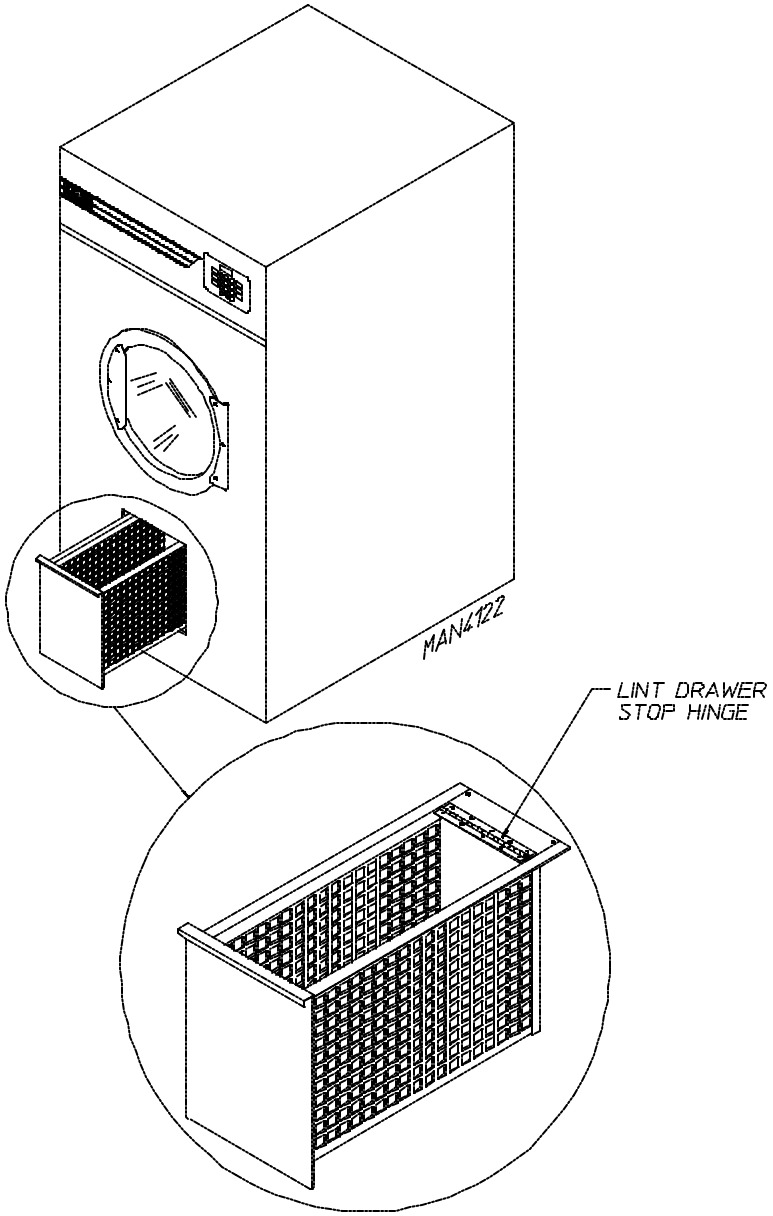
C. LUBRICATION

1. Impellor (fan) shaft bearing **must be** lubricated **every three (3) months.**

2. The motor bearing, idler bearings, and tumbler bearings are **permanently lubricated. NO LUBRICATION IS NECESSARY.**

D. LINT DRAWER REMOVAL

To remove the lint drawer from the dryer pull drawer out approximately half way. Rotate and move lint drawer stop hinge (refer to the illustration below) downward and pull drawer out.



IMPORTANT: After reinstalling the lint drawer back to the upward stop position.

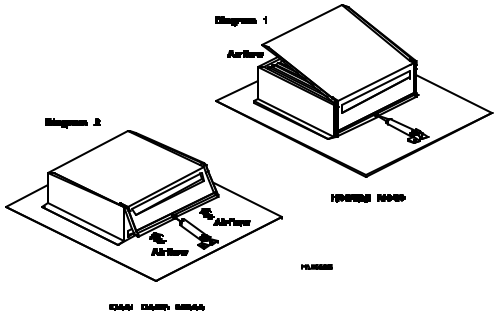
SECTION VII

PROCEDURE FOR FUNCTIONAL CHECK OF REPLACEMENT COMPONENTS

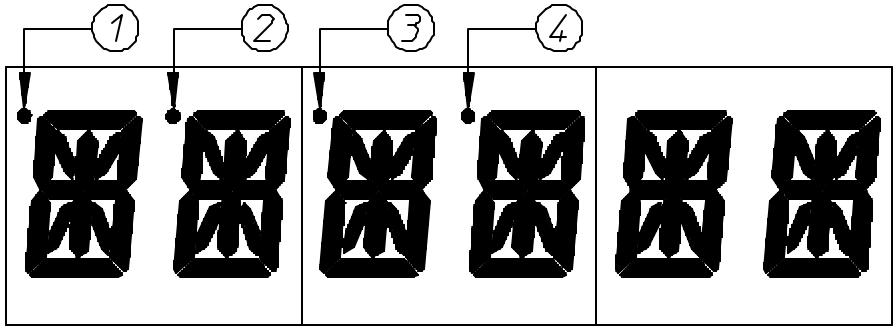
1. Microprocessor (computer) Board

a. Upon completing installation of the replacement microprocessor (computer) board, reestablish power to the dryer.

b. Start the drying cycle by pressing any of the preset cycles in letters A-F.



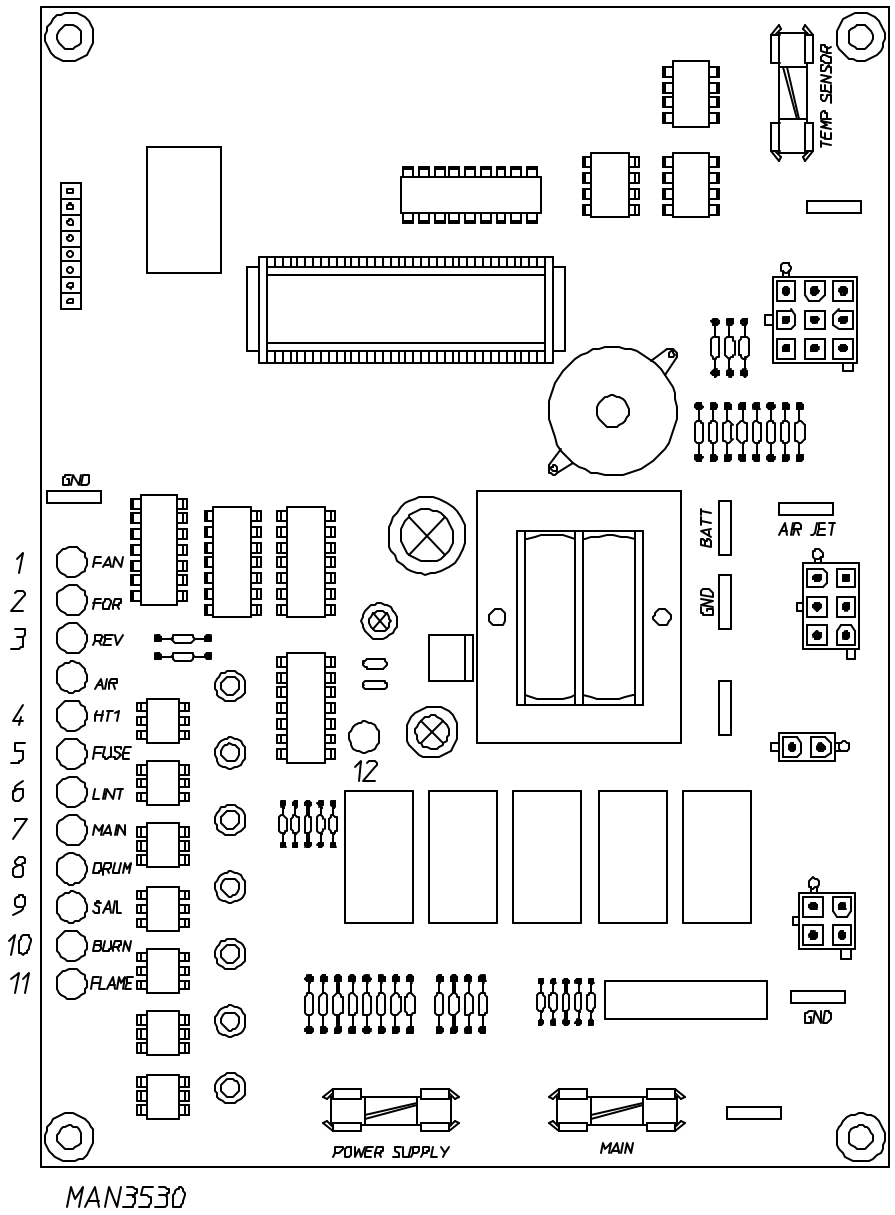
c. Verify that the motor(s) and the heat indicator dots, in the microprocessor (computer) L.E.D. display are on. (Refer to the illustration below.)



MAN3528

1. Basket (tumbler) in Forward Mode (clockwise)
2. Basket (tumbler) in Reverse Mode (counterclockwise) indicator (for Reversing Models Only)
3. Heat on indicator
4. On indicator (dryer is in Operation Mode)

Verify that the motor(s) heat, and door indicator lights on the back side of the microprocessor (computer) board are lit. (refer to the illustration below):



1. "FAN" (Blower) L.E.D. indicator
2. "FOR" (Forward) output L.E.D. indicator (for optional Reversing Models Only)
3. "Rev" (Reverse) output L.E.D. indicator (for optional Reversing Models Only)
4. "HT 1" (Heat) output L.E.D. indicator
5. "Fuse" (Main Fuse) input L.E.D. indicator
6. "Lint" (Lint Door) input L.E.D. indicator
7. "Main" (Main Door) input L.E.D. indicator
8. "Drum" (Tumbler Hi-Limit) input L.E.D. indicator
9. "Sail" (Sail Switch) input L.E.D. indicator
10. "Burn" (Burner Hi-Limit) input L.E.D. indicator
11. "Flame" (Burner Control Failure) input L.E.D. indicator
12. "Power Supply" L.E.D. Input Indicator

d. Open main door. The dryer **must stop** and **ALL** output indicator lights on the back side of the microprocessor (computer) board **must go out**. (Refer to the **illustration** on **previous page** [**page 42**].)

e. Try to restart the dryer with the main door open.

f. The microprocessor (computer) board's L.E.D. display ***must read*** "**DOOR**."

g. Close the main door and restart the dryer.

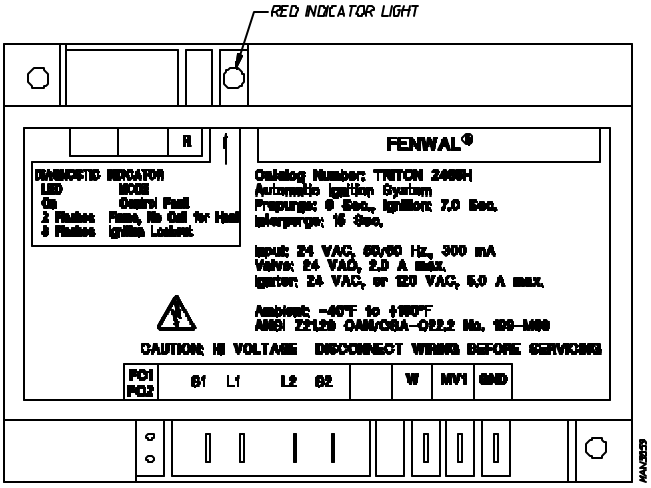
h. Functional check of microprocessor (computer) board is complete.

2. Hot Surface Ignition (HSI) System

a. Upon completing installation of the replacement Hot Surface Ignition (HSI) module, reestablish power to the dryer.

b. The HSI module's "red" indicator light will light up for approximately 5 seconds (self check routine).

If the HSI module's "red" indicator light stays on or flashes continuously, then the HSI module is wired incorrectly or has failed.



c. Start the drying cycle.

d. The hot surface ignitor will turn on. After approximately 4 seconds the glo-bar will shut off and the gas valve will be energized. ***The flame should now be established.***

e. With the burner flame on, remove the flame sensor wire from the S2 terminal of the HSI module. ***The burner flame must shut off immediately.***

f. Stop the drying cycle, with the flame sensor wire still removed, restart the drying cycle.

g. The hot surface ignitor will turn on and after approximately 4 seconds the hot surface ignitor will shut off. The gas valve will be energized and a burner flame **should be** evident for approximately 7 seconds and then shut off.

h. The HSI module will attempt two (2) additional ignition trials after which the HSI module will lock out and the "red" indicator light ***will flash continuously.***

i. Functional check of the Hot Surface Ignition (HSI) Module is complete.

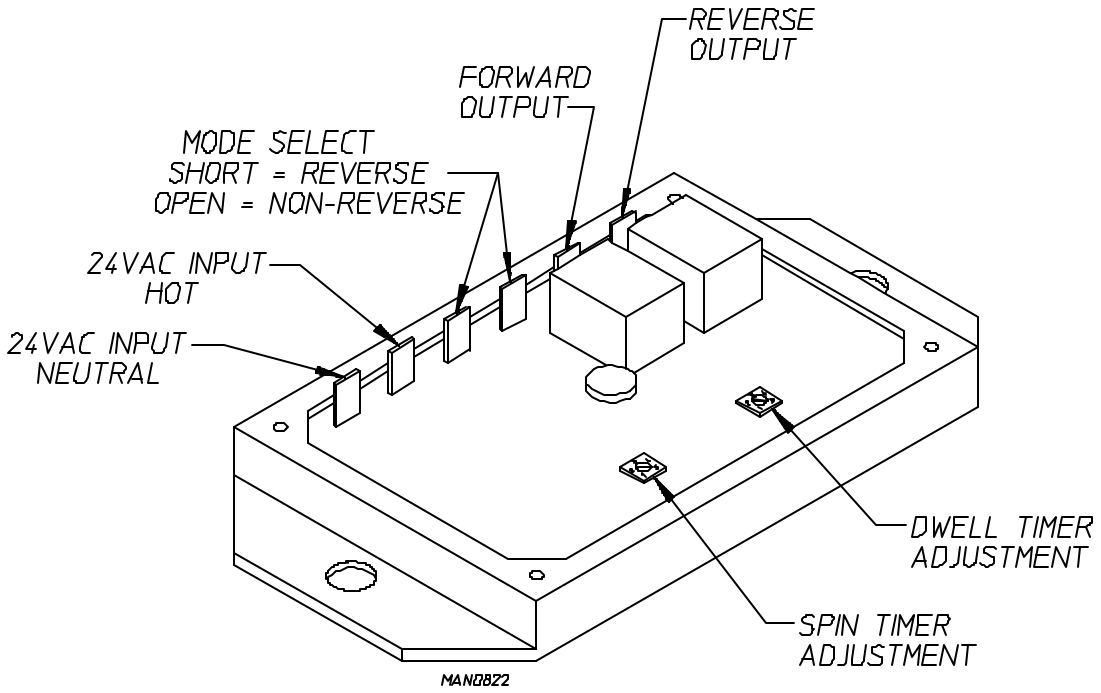
1) Replace the flame sensor wire from the S2 terminal to the HSI module.

SECTION VIII

REVERSING TIMER SPIN/DWELL ADJUSTMENTS

Dual timer models with "reversing option" have an electric reversing timer in the electric service box which is located in the upper rear area of the dryer.

Both the dwell (stop) time and basket (tumbler) spin time are adjustable by mode selection switches located on the electronic timer (as noted in the illustration below).



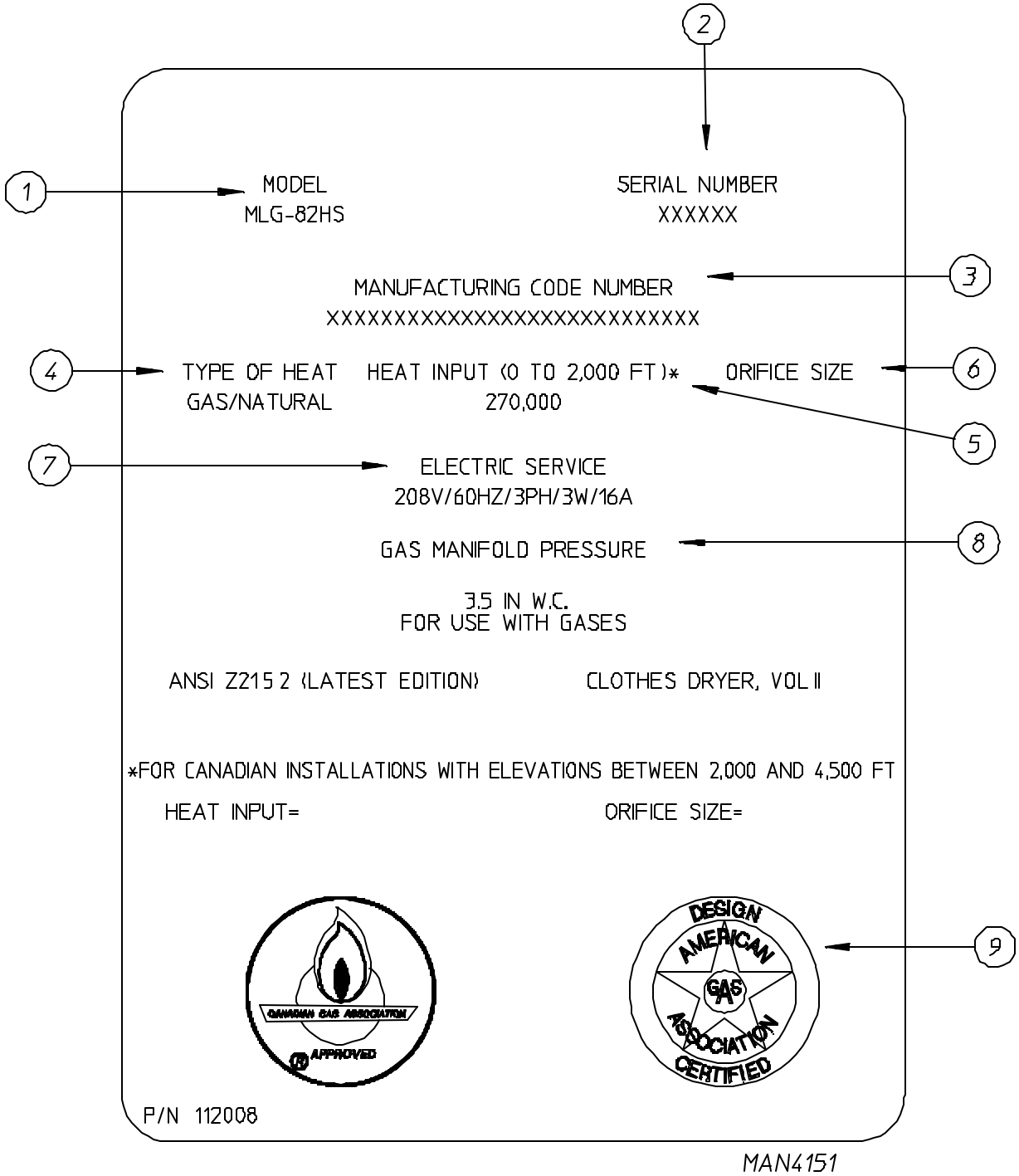
Timing Legend					
Spin Time					
Switch Position Number	1	2	3	4	5
Time in Seconds*	30	60	90	120	150
dd					
Dwell (Stop) Time	1	2	3	4	5
Switch Position Number	5	6	8	10	12
Time in Seconds*					
* Values shown are +/- 1 second.					

SECTION IX

TECHNICAL INFORMATION

A. DATA LABEL

Contact American Dryer Corporation



When contacting American Dryer Corporation certain information is required to insure proper service / parts information from American Dryer. This information is on the data label located on the inside of the control door. When contacting American Dryer please have the model number and serial number available.

THE DATA LABEL

1. **MODEL DRYER**
   The model number is an **ADC** number which describes the size of the dryer and the type of heat (gas, electric, or steam).

2. **SERIAL NUMBER**
   The serial number allows **ADC** to gather information on your particular dryer.

3. **MANUFACTURING CODE NUMBER**
   The manufacturing code number is a number issued by **ADC** which describes **ALL** possible options on your particular model.

4. **TYPE OF HEAT**
   The type of heat describes the type heat for your particular dryer; gas (either natural gas or liquid propane [L.P.]), or steam.

5. **HEAT INPUT** (for GAS DRYERS)
   This describes the heat input in British Thermal Units per Hour (BTUH).

6. **ORIFICE SIZE** (for GAS DRYERS)
   Gives the number drill size used.

7. **ELECTRIC SERVICE**
   This describes the electric service for your particular model.

8. **GAS MANIFOLD PRESSURE** (for GAS DRYERS)
   This describes the manifold pressure taken at the gas valve tap.

9. **APPLICABLE APPROVAL SEAL(S)**
   I.E., American Gas Association, Canadian Gas Association.

ADC 113051 **1-** 11/03/98-15 **2-** 12/08/98-5 **3-** 02/01/99-5
4* 03/25/99-50 **5-** 05/25/99-100 **6*** 09/21/99-100
7* 02/24/00-20 **8-** 02/25/00-150

American Dryer Corp.